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Question # 1

A 15-year-old boy is brought to the physician by his mother because of 4 months of strange behavior. She says that during this period, he has had episodic mood swings. She has sometimes found him in his room “seemingly drunk” and with slurred speech. These episodes usually last for approximately 15 minutes, after which he becomes irritable. He has had decreased appetite, and his eyes occasionally appear red. He has trouble keeping up with his schoolwork, and his grades have worsened. Physical examination shows an eczematous rash between the upper lip and nostrils. Neurologic examination shows a delay in performing alternating palm movements. Use of which of the following is the most likely cause of this patient's condition?

	Answer	Image
A	Inhalants	
B	Alcohol	
C	Phencyclidine	
D	Cocaine	
E	Marijuana	

Hint

This patient is using a substance that has a mechanism of action that is similar to nitrous oxide; its use results in central nervous system depression that lasts 15–45 minutes.

Correct Answer

A - Inhalants

Explanation Why

This patient is most likely using inhalants (e.g., aerosols, glue, shoe polish, spray paint), a group of recreational drugs that are most commonly used among [adolescents](#). Common manifestations of inhalant use include [mood](#) swings (due to rapid onset and short duration of action), irritability, slurred [speech](#), anorexia, [conjunctival injection](#), poor concentration, [ataxia](#) (manifesting as, e.g., [dysidiadochokinesia](#)), and an [eczematous](#) rash in the perioral area (i.e., the glue-sniffer's rash, which is caused by the drying effects of [hydrocarbons](#)), all of which are seen in this patient. In severe cases, inhalant use can cause [cardiac arrhythmias](#) and severe [central nervous system](#) toxicity (e.g., [seizures](#), [coma](#), and death due to respiratory depression).

B - Alcohol

Explanation Why

Alcohol use, which is common in [adolescence](#), can cause slurred [speech](#), irritability, and [ataxia](#). However, these symptoms typically last for hours; withdrawal symptoms, which can include anxiety, irritability, and anorexia, are not expected within minutes after use. In addition, this patient does not have other typical manifestations of [alcohol intoxication](#), such as disinhibited behavior. Moreover, alcohol use is not associated with a perioral rash.

C - Phencyclidine

Explanation Why

[Phencyclidine](#) (PCP) use can cause neuropsychiatric symptoms, including bizarre behavior, irritability, and [ataxia](#). However, these symptoms typically last for hours; withdrawal symptoms, which can include anxiety and irritability, are not expected within minutes after use. In addition, this patient does not have other typical manifestations of PCP intoxication, including [diaphoresis](#), [seizures](#), violent behavior, or [hallucinations](#). Moreover, PCP use is not associated with a perioral

rash.

D - Cocaine

Explanation Why

[Cocaine](#) use can cause euphoria and irritability that usually last 15–60 minutes. However, seeming drunk and having slurred [speech](#) is not typical for [cocaine](#) use. Acute withdrawal symptoms include depression, anxiety, and increased appetite, rather than the irritability seen in this patient. While chronic [cocaine](#) use can result in changes in behavior, poor concentration, and decreased appetite, it does not usually cause [ataxia](#). Intranasal [cocaine](#) use can cause chronic [rhinitis](#) and perforation of the [nasal septum](#); it is not typically associated with a perioral rash.

E - Marijuana

Explanation Why

[Marijuana](#) use can cause slurred [speech](#), [conjunctival injection](#), [ataxia](#), and poor concentration. Acute intoxication often results in euphoria, and withdrawal can cause irritability. However, withdrawal symptoms typically occur several days after abrupt cessation of prolonged [marijuana](#) use (not within minutes after use). In addition, [marijuana](#) use typically results in increased, not decreased, appetite. Moreover, it is not associated with a perioral rash.

Question # 2

A 31-year-old man comes to the emergency department because of chest pain for the last 3 hours. He describes the pain as a sharp, substernal chest pain that radiates to the right shoulder; he says “Please help me. I’m having a heart attack.” He has been admitted to the hospital twice over the past week for evaluation of shortness of breath and abdominal pain but left the hospital the following day on both occasions. The patient does not smoke or drink alcohol but is a known user of intravenous heroin. He has been living in a homeless shelter for the past 2 weeks after being evicted from his apartment for failure to pay rent. His temperature is 37.6°C (99.6°F), pulse is 90/min, respirations are 18/min, and blood pressure is 125/85 mm Hg. The patient seems anxious and refuses a physical examination of his chest. His cardiac troponin I concentration is 0.01 ng/mL. An ECG shows a normal sinus rhythm with nonspecific ST-T wave changes. While the physician is planning to discharge the patient, the patient reports numbness in his arm and insists on being admitted to the ward. On the following day, the patient leaves the hospital without informing the physician or the nursing staff. Which of the following is the most likely diagnosis?

	Answer	Image
A	Conversion disorder	
B	Factitious disorder	
C	Malingering	
D	Illness anxiety disorder	
E	Somatic symptom disorder	

Hint

This patient is most likely seeking an external reward.

Correct Answer

A - Conversion disorder

Explanation Why

Individuals with a [conversion disorder](#) experience neurological symptoms (e.g., numbness, weakness, [tremors](#), pseudoseizures) that are not consistent with any known neurologic disorder and often follow an acute stressor. However, non-neurological symptoms such as substernal [chest pain](#), [shortness of breath](#), or abdominal [pain](#) would not be expected. Moreover, unlike this patient, individuals with [conversion disorder](#) exhibit symptoms in the absence of an obvious external reward.

B - Factitious disorder

Explanation Why

Individuals with [factitious disorder](#) intentionally feign the symptoms of an illness (including induction of injury or disease through self-harm); however, the motive is the emotional support or sympathy (internal reward) obtained by playing the “sick role” and not an external reward (e.g., housing). Moreover, unlike this patient, individuals with a [factitious disorder](#) are usually cooperative during their medical evaluation.

C - Malingering

Explanation Why

[Malingering](#) is characterized by the conscious feigning of symptoms (often false or grossly exaggerated) in order to obtain an external reward (e.g., housing, time off from work, narcotics, avoidance of jail time). Individuals are typically uncooperative during their medical evaluation out of fear of being caught, such as this man who refuses a [physical examination](#) of the chest. Symptoms usually improve once the desired benefit is obtained. [Malingering](#) is not classified as a mental disorder.

D - Illness anxiety disorder

Explanation Why

Individuals with [illness anxiety disorder](#) often have a history of frequent visits to physicians, hospitalization, and inconclusive diagnostic tests. However, this disorder is characterized by significant anxiety over health and persistent fear (≥ 6 months) of having or developing an illness despite having no or only mild physical symptoms. This patient has intermittent symptoms that started one week ago and he is likely motivated by an external reward, which is not consistent with [illness anxiety disorder](#).

E - Somatic symptom disorder

Explanation Why

Individuals with [somatic symptom disorder](#) report multiple somatic symptoms (e.g., [chest pain](#), [shortness of breath](#), abdominal [pain](#)) and often have a history of frequent visits to physicians, hospitalizations, and inconclusive diagnostic tests. However, the symptoms of [somatic symptom disorder](#) persist for a period of ≥ 6 months, occur in the absence of a motive, and cause constant excessive distress to the patient. This patient has only had symptoms intermittently over the past week, is likely motivated by an external reward, and does not appear to be excessively concerned by his symptoms as he left the hospital on multiple occasions without informing the staff.

Question # 3

A 28-year-old woman is brought to a counselor by her father after he found out that she is being physically abused by her husband. The father reports that she refuses to end the relationship with her husband despite the physical abuse. She says that she feels uneasy when her husband is not around. She adds, "I'm worried that if I leave him, my life will only get worse." She has never been employed since they got married because she is convinced that nobody would hire her. Her husband takes care of most household errands and pays all of the bills. Physical examination shows several bruises on the thighs and back. Which of the following is the most likely diagnosis?

	Answer	Image
A	Borderline personality disorder	
B	Social anxiety disorder	
C	Separation anxiety disorder	
D	Dependent personality disorder	
E	Schizoid personality disorder	
F	Avoidant personality disorder	

Hint

The patient has a diagnosis characterized by poor self-confidence and insecurity.

Correct Answer

A - Borderline personality disorder

Explanation Why

Patients with [borderline personality disorder](#) often have a fear of abandonment, but typically have a pattern of instability in relationships. In contrast, this patient has continued to endure a physically abusive relationship. In addition, patients with [borderline personality disorder](#) typically display impulsivity, [suicidal behavior](#), and self-injurious behavior, none of which are seen in this patient.

B - Social anxiety disorder

Explanation Why

Patients with [social anxiety disorder](#) have marked anxiety about one or more social situations to the extent that they may also avoid certain social settings, which may affect their occupational functioning and interpersonal relationships. However, their anxiety is driven by fear of embarrassment, rather than by feelings of poor self-confidence and insecurity.

C - Separation anxiety disorder

Explanation Why

Patients with [separation anxiety disorder](#) may demonstrate excessive fear and anxiety about being alone, similar to this woman's uneasiness when her husband is not present. However, patients with this condition also demonstrate a preoccupation with losing an attachment figure or reluctance to leave home, which can manifest as excessive worrying, nightmares, and/or physical complaints; this patient does not demonstrate these behaviors. In addition, [separation anxiety disorder](#) is seen more commonly in children.

D - Dependent personality disorder

Explanation Why

[Dependent personality disorder](#) is characterized by fear of abandonment and excessive reliance on the care of others. This woman feels helpless when alone, is unable to initiate projects due to lack of self-confidence (e.g., has never been employed), and depends on her husband to make everyday decisions in her life (e.g., household errands, bill payment); these behaviors are consistent with a diagnosis of [dependent personality disorder](#). Patients with this [personality disorder](#) may endure abusive relationships in part due to fear of abandonment.

E - Schizoid personality disorder

Explanation Why

Patients with [schizoid personality disorder](#) usually have few interpersonal relationships and choose solitary activities. These patients do not desire close relationships and are indifferent to the criticism of others. [Schizoid personality disorder](#) is not characterized by poor self-confidence, fear of abandonment, or inability to make everyday decisions (e.g., household errands, bill payment).

F - Avoidant personality disorder

Explanation Why

Patients with [avoidant personality disorder](#) can demonstrate a reluctance to initiate projects due to low self-confidence. However, they tend to avoid relationships due to fear of ridicule or rejection; in contrast, this patient has remained in a relationship with her husband. In addition, [avoidant personality disorder](#) is not characterized by an inability to make everyday decisions (e.g., household errands, bill payment).

Question # 4

A 19-year-old woman is brought to the physician by her father because he has been worried about his daughter's strange behavior for the past 2 years. She does not have any friends, spends most of her time alone in her room, and does not feel comfortable around other people. She usually wears long cloaks and large, unusual hats. She wears her shoes to bed because she sleepwalks and claims “nargles” will try to steal them otherwise. Her father is concerned about her going to college because she was bullied in high school. At the end of last year, her father found her putting up posters around the school asking for her possessions to be returned, as the other students had been hiding them. The daughter seemed unconcerned though, saying that “it's all in good fun.” On mental status examination, she seems dreamy and avoids eye contact, but doesn't appear embarrassed about being addressed. Which of the following is the most likely diagnosis?

	Answer	Image
A	Social anxiety disorder	
B	Schizotypal personality disorder	
C	Paranoid personality disorder	
D	Schizoid personality disorder	
E	Schizophrenia	

Hint

When asked about “nargles” she says “You can laugh! But people used to believe there were no such things as the Blibbering Humdinger or the Crumple-Horned Snorkack!”

Correct Answer

A - Social anxiety disorder

Explanation Why

Patients with [social anxiety disorder](#) experience anxiety in social situations, as is seen in this patient. However, in [social anxiety disorder](#), anxiety is driven by an intense fear of embarrassment in social situations. Moreover, this patient's odd beliefs, [magical thinking](#), and unusual clothing would not be explained by [social anxiety disorder](#).

B - Schizotypal personality disorder

Explanation Why

[Schizotypal personality disorder](#) is a [cluster A personality disorder](#). It usually manifests with eccentric behavior, and affected individuals have odd beliefs or [magical thinking](#) that are inconsistent with cultural norms. This woman's social anxiety, inappropriate affect, and lack of close friends are also common features of this disorder.

C - Paranoid personality disorder

Explanation Why

Individuals with [paranoid personality disorder](#) are emotionally isolated and exhibit eccentric behavior, as seen in this patient. However, a key component of [paranoid personality disorder](#) is suspicion and distrust toward others. Although this woman is anxious around other people, she does not appear to be suspicious of them. Moreover, [paranoid personality disorder](#) is not typically associated with odd and/or [magical thinking](#).

D - Schizoid personality disorder

Explanation Why

Patients with [schizoid personality disorder](#) present with eccentric behavior and have difficulty developing meaningful social relationships, as seen in this patient. [Schizoid personality disorder](#) is also characterized by a pervasive pattern of social withdrawal and a limited range of emotional expression. However, this patient's interest in paranormal phenomena, [magical thinking](#), and eccentric clothing would not be explained by [schizoid personality disorder](#).

E - Schizophrenia

Explanation Why

[Schizophrenia](#) commonly presents with a [prodrome](#) of negative [psychotic symptoms](#) characterized by social withdrawal, followed by positive symptoms (i.e., [hallucinations](#), [delusions](#), and bizarre behavior). Although this patient prefers to be alone and has odd beliefs, she does not meet the diagnostic criteria for [schizophrenia](#), because she has no clear [delusions](#) or [hallucinations](#) and does not demonstrate disorganized speech or behavior.

Question # 5

A 29-year-old woman is brought to the physician by her father because of a change in her behavior over the past 8 months. The father says that his daughter has become increasingly withdrawn; she has not answered any phone calls or visited her family and friends. The patient says that she has to stay at home because a foreign intelligence service is monitoring her. She thinks that they are using a magnetic field to read her mind. Mental status exam shows disjointed and perseverative thinking. She is anxious and has a flat affect. Which of the following is the most likely diagnosis?

	Answer	Image
A	Schizophrenia	
B	Delusional disorder	
C	Paranoid personality disorder	
D	Schizoid personality disorder	
E	Schizophreniform disorder	

Hint

Patients with this disease can also develop catatonia.

Correct Answer

A - Schizophrenia

Explanation Why

[Schizophrenia](#) commonly presents with a [prodrome](#) of negative symptoms (e.g., disorganized thinking, social withdrawal), followed by positive symptoms (e.g., [hallucinations](#), [delusions](#), bizarre behavior). The diagnosis requires that these symptoms have been present for ≥ 1 month and that some sign of illness has persisted for at least 6 months. Based on this patient's symptoms of social withdrawal and [paranoid delusion](#), which have been present for around 8 months, she has [schizophrenia](#).

B - Delusional disorder

Explanation Why

[Delusional disorder](#) is characterized by fixed, odd beliefs that are not consistent with cultural norms. This patient's functional impairment (e.g., staying at home, avoiding family and friends) is not consistent with [delusional disorder](#).

C - Paranoid personality disorder

Explanation Why

[Paranoid personality disorder](#) is characterized by irrational distrust towards others and the misconception that other people have malicious intentions. However, this woman has evidence of [paranoid delusions](#) (e.g., she's convinced she's being monitored using a magnetic field) and disorganized thought process, neither of which are characteristic of [paranoid personality disorder](#).

D - Schizoid personality disorder

Explanation Why

[Schizoid personality disorder](#) is also characterized by odd and eccentric behavior, flat affect, and a lack of close friendships. However, this patient's severe social withdrawal and [paranoid delusions](#) are not typical of [schizoid personality disorder](#). Additionally, [personality disorders](#) typically begin in early adulthood and remain stable over time, while the onset of this patient's symptoms was fairly recent.

E - Schizophreniform disorder

Explanation Why

[Schizophreniform disorder](#) is an important diagnosis to consider in this patient, as it can also present with [paranoid delusions](#) and social withdrawal. However, [schizophreniform disorder](#) is only diagnosed if the symptoms have been present for less than 6 months.

Question # 6

Two days after undergoing uncomplicated total knee replacement, a 55-year-old man develops increasing anxiety, agitation, hand tremor, and nausea. He told the nurse he saw a bear in his room. His pain has been controlled with intravenous morphine. He has a history of advanced liver disease. He drinks 7 cans of beer daily. He is diaphoretic. His temperature is 37.6°C (99.7°F), pulse is 118/min, respirations are 18/min, and blood pressure is 146/92 mm Hg. Administration of which of the following drugs is the most appropriate next step in treatment?

	Answer	Image
A	Naloxone	
B	Chlordiazepoxide	
C	Cyproheptadine	
D	Lorazepam	
E	Dantrolene	
F	Haloperidol	
G	Carbamazepine	

Hint

This patient has an excessive drinking pattern that was disrupted because of surgery. He now presents with symptoms of sympathetic overstimulation (e.g., agitation, tachycardia, hypertension, diaphoresis, and tremors) and visual hallucinations, which are characteristic of delirium tremens. This condition typically occurs 48–96 hours after cessation of drinking.

Correct Answer

A - Naloxone

Explanation Why

[Naloxone](#) is the first-line treatment for [opioid overdose](#). This patient has received intravenous [morphine](#), an [opiate analgesic](#), for [pain](#) control. [Morphine](#) causes decreased responsiveness, respiratory depression, and [miosis](#). This patient has a normal [respiratory rate](#), is [alert](#) and oriented, and does not have any pupillary abnormalities, making an [opioid overdose](#) unlikely.

B - Chlordiazepoxide

Explanation Why

[Chlordiazepoxide](#) is a long-acting [benzodiazepine](#) and a first-line treatment for [alcohol withdrawal syndrome](#). However, [chlordiazepoxide](#) undergoes hepatic metabolism and should be avoided in patients with severe [liver](#) disease, such as this patient.

C - Cyproheptadine

Explanation Why

[Cyproheptadine](#) is an [antihistamine](#) used in the management of [serotonin syndrome](#). [Serotonin syndrome](#) can manifest with [tremor](#), [diaphoresis](#), nausea, agitation, anxiety, [hypertension](#), and [tachycardia](#), as seen in this patient. However, this patient lacks other features typical of this condition, such as [fever](#), [hyperreflexia](#), and myoclonus. Moreover, he has no history of ingestion of serotonergic drugs (e.g., [antidepressants](#)) that could cause [serotonin syndrome](#).

D - Lorazepam

Explanation But

Alcohol is a [CNS](#) depressant. Chronic alcohol use results in an adaptive response to persistent inhibitory tone. This response includes decreased sensitivity to [GABA](#) (an inhibitory [neurotransmitter](#)) and upregulation of the NMDA receptor (which is activated by [glutamate](#), an excitatory [neurotransmitter](#)). Cessation of alcohol use results in decreased inhibitory tone, which results in the manifestations of [alcohol withdrawal](#) (e.g., [tachycardia](#), [hypertension](#), [tremors](#), anxiety, [hallucinations](#), [seizures](#)).

Explanation Why

[Benzodiazepines](#) are the first-line therapy for [alcohol withdrawal syndrome](#). Long-acting [benzodiazepines](#) with active metabolites (e.g., [diazepam](#) or [chlordiazepoxide](#)) are preferred because they result in a smoother withdrawal course. However, in a patient with advanced [liver](#) disease or acute [alcoholic hepatitis](#), short- and intermediate-acting [benzodiazepines](#) with minimal first-pass metabolism and no active metabolites, such as [lorazepam](#) and [oxazepam](#), should be used. [Delirium tremens](#) has a 5% [mortality rate](#) and must be treated urgently.

E - Dantrolene

Explanation Why

[Dantrolene](#) is a [muscle relaxant](#) that inhibits Ca^{2+} release within [myocytes](#). It is used as a first-line therapy for [malignant hyperthermia](#) and can also be administered in cases of suspected [neuroleptic malignant syndrome](#) ([NMS](#)). Although [malignant hyperthermia](#) can also cause [tachycardia](#), it usually manifests with severe hyperthermia and muscle [rigidity](#), neither of which are seen in this patient. [NMS](#) is also characterized by muscle [rigidity](#) and hyperthermia and usually occurs after initiation of [antipsychotic](#) therapy; this patient has no history of [antipsychotic](#) use.

F - Haloperidol

Explanation Why

[Antipsychotics](#), such as [haloperidol](#), should not be used routinely in the treatment of [alcohol withdrawal syndrome](#) because they increase the risk for withdrawal [seizures](#) by lowering the [seizure](#) threshold. Moreover, these drugs may interfere with heat dissipation. Treatment with [antipsychotics](#) may be considered in case of a concomitant decompensated thought disorder (e.g., [schizophrenia](#)) after withdrawal symptoms have been successfully treated.

G - Carbamazepine

Explanation Why

[Carbamazepine](#) can be used for treating mild [alcohol withdrawal syndrome](#) in an ambulatory setting. However, it is not recommended for patients with severe symptoms or [delirium tremens](#) because it can mask the hemodynamic signs of withdrawal that often precede [seizures](#). The therapeutic role of [carbamazepine](#) in the treatment of withdrawal [seizures](#) is incompletely evaluated.

Question # 7

A 21-year-old female college student with a history of anxiety is brought to the physician for evaluation of fatigue for the past 6 months. Over the past year, she has had extreme fluctuations in her weight and has become more distant from her friends. She admits to binge eating and induced vomiting. She appears tired and pale. Her BMI is 18.7 kg/m^2 . Examination shows poor dentition. This patient is most likely to have which of the following serum laboratory profiles?

	pH	HCO_3^- (mEq/L)	Anion Gap	K^+ (mEq/L)
A	7.41	16	23	3.6
B	7.49	34	9	3.0
C	7.31	14	26	5.5
D	7.31	23	12	4.7
E	7.48	23	8	4.1

	Answer	Image
A	A	
B	B	
C	C	
D	D	
E	E	

Hint

This patient has symptoms consistent with bulimia nervosa, and her lab results will reflect self-induced vomiting.

Correct Answer

A - A

Explanation Why

These lab findings are consistent with a mixed [anion-gap metabolic acidosis](#) and [respiratory alkalosis](#), which we can assume given the normal pH despite markedly decreased [bicarbonate](#). This scenario is classic for early [aspirin toxicity](#), which causes an [anion-gap metabolic acidosis](#) but also stimulates [hyperventilation](#), which causes a [respiratory alkalosis](#). There is nothing in this patient's history to suggest [aspirin toxicity](#).

B - B

Explanation Why

These lab findings reflect a [hypokalemic metabolic alkalosis](#), which is consistent with this patient's history of frequent vomiting. Emesis leads to a loss of hydrogen ions secreted by gastric [parietal cells](#), as well as a loss of [chloride](#) ions. Moreover, the alkalotic environment results in increased activity of cellular K^+/H^+ antiporter, which moves H^+ ions extracellularly to correct the [alkalosis](#). In exchange, K^+ ions are being moved intracellularly, creating a state of relative [hypokalemia](#).

C - C

Explanation Why

These lab findings are consistent with an [anion-gap metabolic acidosis](#), causes of which include [diabetic ketoacidosis \(DKA\)](#), [lactic acidosis](#), and [uremia](#). [Anion gaps](#) are formed by the presence of unmeasured anions (i.e., anions other than Cl^- and HCO_3^-), such as [ketones](#). The elevated serum K^+ often seen with [metabolic acidosis](#) occurs due to extracellular K^+ shifts in response to H^+ being moved intracellularly (via K^+/H^+ antiporter). This patient's frequent vomiting would not cause an [anion-gap metabolic acidosis](#).

D - D

Explanation Why

These lab findings are consistent with a primary [respiratory acidosis](#) (e.g., from [hypoventilation](#) due to [opioid overdose](#)), which we can assume given the normal [bicarbonate](#) value. [Hypoventilation](#) causes retention of CO₂, leading to an increase of hydrogen ions in the blood, decreasing [blood pH](#). Serum [bicarbonate](#) levels are normal, indicating that metabolic [compensation](#) has not yet occurred. This is inconsistent with our clinical scenario.

E - E

Explanation Why

These lab findings are consistent with a primary, acute [respiratory alkalosis](#) secondary to [hyperventilation](#), which we can assume given the elevated pH but normal [bicarbonate](#). [Hyperventilation](#) increases CO₂ exhalation, leading to a decreased load of hydrogen ions within the blood and [alkalosis](#). The normal [bicarbonate](#) shows that there is no metabolic [compensation](#), which suggests an acute process (the [kidneys](#) have not yet started to excrete [bicarbonate](#) to compensate for the [alkalosis](#)). This is not consistent with the clinical scenario seen here.

Question # 8

Six days after undergoing surgical repair of a hip fracture, a previously healthy 79-year-old woman is agitated and confused. She is unarousable during the day, but then is awake and impulsive during the night, requiring frequent reorientation. Her husband says that she usually drinks one to two glasses of wine weekly. Her only current medication is oxycodone for pain. Her vital signs are within normal limits. She is distressed and oriented to person but not to place or time. Neurologic examination shows inattentiveness but no focal deficits. Urine dipstick is normal. Which of the following is the most likely cause of her current condition?

	Answer	Image
A	Dementia	
B	Alcohol withdrawal	
C	Opioid intoxication	
D	Delirium	
E	Schizophrenia	
F	Urinary tract infection	

Hint

This condition is characterized by waxing and waning attentiveness.

Correct Answer

A - Dementia

Explanation Why

[Dementia](#) is a common cause of chronic, sustained altered mental status in elderly patients. However, the sudden onset and waning pattern of this patient's symptoms are not consistent with [dementia](#).

B - Alcohol withdrawal

Explanation Why

[Alcohol withdrawal](#) is an important diagnosis to consider in a hospitalized patient with altered mental status, and can present with anxiety, psychomotor agitation, [insomnia](#), [alcoholic hallucinosis](#), and/or [delirium tremens](#). This patient has been in the hospital for at least six days, which is beyond the typical timeframe of [alcohol withdrawal](#) symptom onset. Furthermore, her normal vital signs, lack of a [tremor](#), and minimal alcohol use make this diagnosis unlikely.

C - Opioid intoxication

Explanation Why

[Opioid intoxication](#) is an important cause to consider in a patient with altered mental status who is taking oxycodone. Classic signs of [opioid intoxication](#) include [somnolence](#) and respiratory depression, whereas this patient has a normal [respiratory rate](#) and episodically altered sensorium with periods of hyperactivity.

D - Delirium

Explanation Why

[Delirium](#) occurs postoperatively in ~ 10–50% of elderly patients who undergo surgical [hip fracture](#) repair and is characterized by the acute onset of waxing and waning altered mental status. This patient has multiple [risk factors](#) for [delirium](#), including advanced age, current hospitalization, recent surgery, and administration of [opioids](#). Inadequate [analgesia](#) has also been implicated in the development of [delirium](#) in postoperative patients.

E - Schizophrenia

Explanation Why

[Schizophrenia](#) is typically characterized by [hallucinations](#), [delusions](#), disorganized thought process, and/or negative symptoms of psychosis. The acute onset and episodic, waning nature of this patient's symptoms are not consistent with [schizophrenia](#). Furthermore, a new diagnosis of [schizophrenia](#) in this age group would be highly unusual.

F - Urinary tract infection

Explanation Why

[Urinary tract infections](#) can present with altered mental status, especially in elderly patients. This patient's extended hospitalization increases her risk for [UTI](#). However, the unremarkable urinary [dipstick](#) and lack of symptoms, such as [dysuria](#), urgency, or frequency makes this diagnosis unlikely.

Question # 9

A 9-year-old boy is brought to the physician by his mother because of poor performance in school for the last year. He has difficulty sitting still at his desk, does not follow the teacher's instructions, and frequently blurts out answers in class. He often gets sent outside the classroom for failing to work quietly. At hockey practice, he does not wait his turn and has difficulty listening to his coach's instructions. His mother reports that he is easily distracted when she speaks with him and that he often forgets his books at home. Physical examination shows no abnormalities. Which of the following is the most appropriate pharmacotherapy?

	Answer	Image
A	Atomoxetine	
B	Suvorexant	
C	Buspirone	
D	Risperidone	
E	Fluoxetine	
F	Varenicline	

Hint

These findings meet diagnostic criteria for attention deficit hyperactivity disorder (ADHD). Both stimulants and nonstimulants are approved to treat this condition.

Correct Answer

A - Atomoxetine

Explanation Why

[Atomoxetine](#) is a nonstimulant drug for treating [ADHD](#) and is prescribed for patients who cannot tolerate stimulants, such as [methylphenidate](#). [Atomoxetine](#) carries a black-box warning for increased [suicidal ideation](#) in children and [adolescents](#), so treatment must be monitored closely. Other nonstimulant drugs approved for the treatment of [ADHD](#) include [clonidine](#) and [guanfacine](#).

B - Suvorexant

Explanation Why

[Suvorexant](#) is used to treat [insomnia](#). It does not have a role in treating [ADHD](#).

C - Buspirone

Explanation Why

[Buspirone](#) is an [anxiolytic](#) drug used to treat [generalized anxiety disorder](#). Patients with [ADHD](#) are at an increased risk of developing anxiety disorders. However, this patient lacks signs of anxiety, and therefore, is unlikely to benefit from [buspirone](#). This drug has no role in managing hyperactivity and inattention in [ADHD](#).

D - Risperidone

Explanation Why

[Risperidone](#) is an [atypical antipsychotic](#) drug used in the treatment of several pediatric neuropsychiatric conditions, including [Tourette syndrome](#) and [obsessive-compulsive disorder](#), as well as aggression in children with [autism](#) disorder. This drug has no role in managing hyperactivity and inattention in [ADHD](#).

E - Fluoxetine

Explanation Why

[Fluoxetine](#), a selective [serotonin reuptake inhibitor \(SSRI\)](#), is used to treat several neuropsychiatric illnesses, including [major depressive disorder \(MDD\)](#), [obsessive-compulsive disorder \(OCD\)](#), and [panic disorder](#). Although [MDD](#) and OCD are potential comorbid conditions of [ADHD](#), this patient lacks findings consistent with these conditions. [Fluoxetine](#) is not indicated to manage hyperactivity and inattention in [ADHD](#).

F - Varenicline

Explanation Why

[Varenicline](#) is used to aid smoking cessation. It has no role in treating [ADHD](#).

Question # 10

A 57-year-old woman with type 2 diabetes mellitus comes to the physician for a follow-up examination. She previously had been adherent to her diet and medication but has had a 5-kg (11-lb) weight gain since the last visit 6 months ago. She reports that she often misses doses of her metformin. Her hemoglobin A1c is 9.8%. Which of the following is the most appropriate initial action by the physician?

	Answer	Image
A	Refer the patient to a dietician	
B	Schedule more frequent follow-up visits	
C	Refer the patient to an endocrinologist	
D	Add glyburide to the medication regimen	
E	Stop metformin and begin an insulin regimen	

Hint

This patient has a markedly elevated hemoglobin A1c as a result of poorly-controlled type 2 diabetes mellitus. Improved control of her diabetes is critical to preventing future complications.

Correct Answer

A - Refer the patient to a dietician

Explanation Why

A referral to a registered dietician could be helpful in addressing this patient's [obesity](#), and a low-[carbohydrate](#), low-fat diet should be recommended to prevent cardiovascular disease and improve diabetic control. However, her poorly-controlled [diabetes](#) is most likely driven primarily by poor [medication adherence](#).

B - Schedule more frequent follow-up visits

Explanation Why

This patient's poor [medication adherence](#) is the most likely cause for her poorly-controlled [diabetes](#), but the cause of her nonadherence is unclear at this point. Scheduling frequent follow-up visits, providing written instructions, employing a [patient-centered approach](#), and optimizing the treatment plan (e.g., prescribing once-daily scheduled medications when possible) are all important strategies that should be considered to improve [medication adherence](#) and to establish a strong doctor-patient relationship. Frequent follow-up visits also enable closer monitoring of the patient's medication use.

C - Refer the patient to an endocrinologist

Explanation Why

Referring the patient to an endocrinologist is indicated if primary management strategies are unsuccessful or if the primary physician feels that managing this patient's condition and/or complications of her underlying disease exceed the level of his or her expertise. However, referral of this patient to an endocrinologist is not indicated at this time, since the elevated [HbA1c](#) is most likely due to poor [medication adherence](#), which is well within the bounds of what can be expected of a primary physician.

D - Add glyburide to the medication regimen

Explanation Why

The addition of [glyburide](#), a [sulfonylurea](#), is indicated if there is concern that monotherapy with [metformin](#) is inadequate for treatment of this patient's [diabetes](#). However, this patient reports poor [medication adherence](#); the addition of another agent is not indicated and may worsen adherence by complicating the medication regimen.

E - Stop metformin and begin an insulin regimen

Explanation Why

Starting [insulin](#) should be considered if there is concern that [metformin](#) is inadequate for the treatment of this patient's [diabetes](#). However, this patient reports poor [medication adherence](#) to [metformin](#); control over her [diabetes](#) may improve after addressing this issue. Moreover, dosing for [insulin therapy](#) is more complicated than that for [metformin](#) therapy; inappropriate use of [insulin](#) can be dangerous due to the risk of inducing [hypoglycemia](#).

Question # 11

A 34-year-old man comes to the physician with a 2-month history of difficulty concentrating at work. He is worried he may lose his job due to poor performance. He feels constantly tired but attributes his fatigue to waking up early most mornings and being unable to fall back asleep. His wife has noticed that he has been speaking more slowly than usual and his appetite has decreased. He used to enjoy dance classes with her but has not been as interested in this recently. He is a veteran who returned from a deployment to Afghanistan 2 years ago. Which of the following is the most likely diagnosis?

	Answer	Image
A	Major depressive disorder	
B	Persistent depressive disorder	
C	Adjustment disorder	
D	Acute stress disorder	
E	Post traumatic stress disorder	

Hint

This patient has symptoms of anhedonia and psychomotor slowing that have persisted for > 2 weeks.

Correct Answer

A - Major depressive disorder

Explanation But

Other criteria for [MDD](#) include impaired functioning in important areas of life (e.g., work), symptoms not being due to the effects of psychoactive substances, an organic disease (e.g., [hypothyroidism](#)) or another psychiatric disorder (e.g., [adjustment disorder with depressed mood](#)), and absence of a [manic](#) or [hypomanic episode](#) ([bipolar disorder](#)).

Explanation Why

[Major depressive disorder](#) ([MDD](#)) is an episodic [mood disorder](#) that is characterized by the presence of at least 5 [SIGECAP](#) symptoms present for at least 2 weeks with at least one of the symptoms being depressed mood or [anhedonia](#). This patient has at least 5 of these symptoms (sleep disturbance, fatigue, appetite change, psychomotor change, [anhedonia](#)). First-line treatment of [MDD](#) includes pharmacotherapy with [SSRIs](#).

B - Persistent depressive disorder

Explanation Why

[Persistent depressive disorder](#) ([dysthymia](#)) is a [mood disorder](#) characterized by depressed mood in addition to ≥ 2 [SIGECAP](#) symptoms. However, these symptoms must be present during most of the day, for the majority of days, for ≥ 2 years, not 2 months. Also, this patient presents with ≥ 5 of the [SIGECAP](#) symptoms, making a different [mood disorder](#) more likely.

C - Adjustment disorder

Explanation Why

[Adjustment disorder with depressed mood](#) is a psychiatric condition in which depressive symptoms

(e.g., depressed mood, sleep disturbance, fatigue, feelings of guilt, appetite change, psychomotor change, and/or [anhedonia](#)) occur in the setting of a significant stressor and last for less than 6 months. The patient's deployment to Afghanistan would be considered a stressor, but it was 2 years ago, which is not within the timeframe for [adjustment disorder](#).

D - Acute stress disorder

Explanation Why

[Acute stress disorder](#) may show symptoms like depressed mood, sleep disturbance, and fatigue, which develop after exposure to a [traumatic event](#), like this patient's deployment to Afghanistan. However, symptoms usually include [intrusive thoughts](#) (recurrent, involuntary, distressing thoughts or [memories](#) of the event), dissociation ([dissociative amnesia](#)), avoidance (efforts to avoid distressing [memories](#) of the event), and [arousal](#) ([paranoia](#), anger). Also, the diagnosis requires that symptoms last between 3 days and 1 month after trauma, not > 2 months like in this patient.

E - Post traumatic stress disorder

Explanation Why

[Post-traumatic stress disorder](#) ([PTSD](#)) is characterized by symptoms like feelings of guilt, [anhedonia](#), depressed mood, sleep disturbance, fatigue, and appetite change, which should be present for > 1 month. However, other criteria of [PTSD](#) are absent, including [flashbacks](#), hypervigilance, and avoidance of triggering stimuli.

Question # 12

A 24-year-old man comes to the physician with a wound on his forearm. He says that he injured himself by absentmindedly walking into a glass door. He has had 5 jobs in the past 8 months. He quit each job after 3–4 weeks because he found the work beneath him. He was imprisoned 6 years ago for credit card fraud. He was released from prison on parole a year ago. He was expelled from school at the age of 13 years for stealing school property and threatening to assault a teacher. He has fathered 6 children with 4 women. He says that he does not pay child support because he needs the money for his own personal expenses. Examination of the forearm shows a 6 cm long, 0.5 cm deep wound with neat edges on the dorsal surface of the left forearm. There are bruises on the left shoulder, back, and the proximal phalanges of the right hand. On mental status examination, the patient is alert and calm. His mood is described as cheerful. His thought process, thought content, and speech are normal. Which of the following is the most likely diagnosis?

	Answer	Image
A	Conduct disorder	
B	Antisocial personality disorder	
C	Narcissistic personality disorder	
D	Oppositional defiant disorder	
E	Intermittent explosive disorder	

Hint

The location and nature of the patient's injuries suggest that he was involved in one or more physical altercations. The patient is most likely being dishonest about the cause of his injuries in order to avoid documentation of any incident that would serve as grounds for a parole violation.

Correct Answer

A - Conduct disorder

Explanation Why

A patient with [conduct disorder](#) would have a history of vandalism, theft/deceitful conduct, and/or physical/verbal aggression, as well as an onset of such behavior before the age of 15 years. [Conduct disorder](#) is also more commonly diagnosed in males. However, [conduct disorder](#) cannot be diagnosed in an individual above the age of 18 years once the criteria for a related disorder have been met.

B - Antisocial personality disorder

Explanation Why

A history of expulsion from school at the age of 13 years for stealing school property and threatening to assault a teacher is highly suggestive of a [conduct disorder](#). [Antisocial personality disorder](#) can be diagnosed when an adult has a history of a [conduct disorder](#) during childhood/[adolescence](#) and has met ≥ 3 of the following 7 criteria after the age of 15 years: repeatedly engaging in activities that are grounds for arrest; deceitfulness; impulsivity/failure to plan ahead; a history of repeated aggression; reckless disregard for one's own safety or the safety of others; a failure to fulfill work-related or financial obligations; and/or a lack of remorse or emotional indifference to the plight of others. This patient has in some way, shape, or form met all 7 criteria.

C - Narcissistic personality disorder

Explanation Why

A patient with [narcissistic personality disorder](#) may not perform work that is “beneath” him/her due to an exaggerated sense of self-importance and might be unable to identify the needs of other individuals (e.g., the needs of his own children). However, vandalism, deceit, and physical aggression are not features of [narcissistic personality disorder](#). Instead, patients have fantasies of unlimited success, power, and/or wealth, as well as a pathological need for praise.

D - Oppositional defiant disorder

Explanation Why

Patients with [oppositional defiant disorder](#) may have workplace issues and a history of expulsion from school. However, such problems stem from difficulties with authority figures (e.g., bosses, teachers) rather than an exaggerated sense of self-importance. Also, physical aggression, vandalism, and deceit are not features of [oppositional defiant disorder](#).

E - Intermittent explosive disorder

Explanation Why

A patient with [intermittent explosive disorder](#) would have recurrent outbursts of physical/verbal aggression. However, deceit and vandalism are not features of intermittent [personality disorder](#). Moreover, [intermittent explosive disorder](#) cannot be diagnosed if the criteria for another disorder associated with physical aggression have been met.

Question # 13

A 17-year-old girl is brought to the physician by her father because of concerns about her behavior. She worries excessively about her weight and body image, and has frequent diarrhea. She is 170 cm (5 ft 7 in) tall and weighs 63.5 kg (140 lb); BMI is 22 kg/m^2 . She appears anxious but well. Physical examination shows calluses on the knuckles of her right hand. Further evaluation of this patient is most likely to show which of the following findings?

	Answer	Image
A	Lanugo body hair	
B	Parotid gland swelling	
C	Elevated blood pressure	
D	Elevated potassium levels	
E	Right upper quadrant tenderness	
F	Jugular venous distention	

Hint

This patient is likely suffering from bulimia nervosa as evidenced by her weight concerns despite a normal BMI, as well as callus formation of the dominant hand (Russell sign). Her diarrhea may be due to laxative abuse.

Correct Answer

A - Lanugo body hair

Explanation Why

Lanugo body [hair](#) does not generally occur with [bulimia](#). It does, however, appear in patients with severe [malnutrition](#) due to [anorexia nervosa](#). This patient's [BMI](#) is in the normal range and she appears physically well; together, these findings exclude the diagnosis of [anorexia nervosa](#).

B - Parotid gland swelling

Explanation Why

[Parotid gland](#) swelling ([sialadenosis](#)) is a common finding in patients with [bulimia nervosa](#). The [parotid gland](#) swelling is the result of [gastric acid](#)-induced [inflammation](#) of the [parotids](#) secondary to repeated self-induced vomiting. Patients can also suffer from acid-induced dental caries and [hypokalemia](#), and they are at increased risk of [seizures](#) due to electrolyte imbalances.

C - Elevated blood pressure

Explanation Why

[Hypertension](#) is an unlikely finding in patients with [bulimia nervosa](#). Instead, patients are at risk of developing [hypotension](#) as the result of [dehydration](#) (due to recurrent self-induced vomiting) or [arrhythmias](#) (due to electrolyte imbalances).

D - Elevated potassium levels

Explanation Why

Patients with [bulimia nervosa](#) are actually at risk of [hypokalemia](#) rather than [hyperkalemia](#). Recurrent [gastric acid](#) loss due to repeated self-induced vomiting results in [metabolic alkalosis](#), and the elevated levels of [bicarbonate](#) signal to the [distal](#) tubules to excrete more potassium into the [urine](#), leading to [hypokalemia](#). In cases of [laxative abuse](#), a direct loss of potassium can occur within the intestines.

E - Right upper quadrant tenderness

Explanation Why

[RUQ](#) tenderness is not associated with [bulimia nervosa](#) but is a common finding in patients with [cholecystitis](#). Although patients with [cholecystitis](#) may experience [diarrhea](#), these conditions would not explain this patient's [Russell's sign](#) nor account for her concerns about her weight. Additionally, this girl's normal body weight and young age would be unusual for [gallstone](#) disease.

F - Jugular venous distention

Explanation Why

[Jugular venous distention](#) is a rare complication of [bulimia nervosa](#), seen in patients with severe [malnutrition](#) and [heart failure](#), neither of which this patient has.

Question # 14

A 21-year-old woman is brought to the emergency room 1 hour after she ingested 12 pills of acetaminophen. She had a fight with her boyfriend immediately prior to the ingestion, during which she threatened to kill herself if he broke up with her. She has been hospitalized 4 times for overdoses in the past 3 years following breakups with her partners. On the way to the hospital, she screamed and then assaulted the paramedic who attempted to take her temperature. Physical examination shows multiple rows of well-healed scars bilaterally on the wrists. This patient is most likely to display which of the following defense mechanisms?

	Answer	Image
A	Fantasy	
B	Reaction formation	
C	Sublimation	
D	Displacement	
E	Splitting	
F	Controlling	

Hint

The patient's extensive history of self-harm (overdoses and cutting) and suicidality, extreme effort to avoid abandonment by her partners, and unstable mood are all features of borderline personality disorder.

Correct Answer

A - Fantasy

Explanation Why

[Fantasy \(psychiatry\)](#) is an [immature defense mechanism](#) in which an individual believes in fantastical or magical ideas in order to cope with a difficult or painful reality (e.g., a child believes that a superhero will rescue him from a difficult household). It is not a major defense mechanism used by patients with [borderline personality disorder](#).

B - Reaction formation

Explanation Why

[Reaction formation](#) is an [immature defense mechanism](#) in which an unacceptable behavior is replaced with a diametrically opposite behavior (e.g., a man is excessively kind to foreigners even though he is xenophobic). It is not a major defense mechanism used by patients with [borderline personality disorder](#).

C - Sublimation

Explanation Why

[Sublimation](#) is a [mature defense mechanism](#) in which an unacceptable impulse or behavior is shifted towards goal-directed, socially acceptable activities (e.g., a man redirects his aggressive behavior into contact sports). It is not a major defense mechanism used by patients with [borderline personality disorder](#).

D - Displacement

Explanation Why

[Displacement \(psychiatry\)](#) is an [immature defense mechanism](#) in which an individual redirects emotions in a destructive or socially unacceptable way to a less threatening object or person (e.g., a teenager who is verbally abused by his teacher yells at his younger brother at home). It is not a major defense mechanism used by patients with [borderline personality disorder](#).

E - Splitting

Explanation Why

Splitting is an [immature defense mechanism](#) in which an individual classifies people as entirely good or entirely bad and can rapidly shift between these two extreme opinions (e.g., a student who dislikes all teachers but believes all student counselors are good people based on their choice of profession alone). Splitting is a major defense mechanism used by patients with [borderline personality disorder](#).

F - Controlling

Explanation Why

[Controlling \(psychiatry\)](#) is an [immature defense mechanism](#) in which an individual attempts to excessively manage or regulate the environment to minimize or avoid anxiety (e.g., a mother will not let her child attend a friend's birthday party unless she can regulate who else will attend). It is not a major defense mechanism used by patients with [borderline personality disorder](#).

Question # 15

A 20-year-old man comes to the physician because he believes he has low testosterone. He states that he is embarrassed at his lack of musculature, despite lifting weights twice daily. Every day, he drinks a gallon of milk and several protein shakes in addition to 3 large meals. He is convinced that his female classmates at the community college he attends are secretly laughing at his scrawny appearance. Over the course of the semester, he has attended fewer and fewer classes out of embarrassment and shame. He is also concerned that his hair is thinning and applies topical minoxidil to his scalp 3 times daily. He spends 2 hours daily anxiously examining himself in the mirror. Today, he is wearing a long-sleeved shirt and a hat. His BMI is 26 kg/m^2 . Physical examination shows no abnormalities. On mental status examination, he has an anxious mood and a full range of affect. Serum studies show a normal testosterone concentration. Which of the following is the most likely diagnosis?

	Answer	Image
A	Avoidant personality disorder	
B	Body dysmorphic disorder	
C	Delusional disorder	
D	Obsessive compulsive disorder	
E	Binge eating disorder	
F	Generalized anxiety disorder	

Hint

This patient's incorrect beliefs about his physical appearance cause him distress, which has resulted in social avoidance, compulsive activities (mirror checking), and camouflaging (wearing a hat and a long-sleeved shirt).

Correct Answer

A - Avoidant personality disorder

Explanation Why

Patients with [avoidant personality disorder](#) also experience anxiety during social interactions, to the extent that they avoid social settings. However, their fear is driven by feelings of rejection, inadequacy, and being disliked, rather than feelings of shame because of physical appearance, as in this patient.

B - Body dysmorphic disorder

Explanation But

Cognitive-behavioral therapy and/or pharmacotherapy with [SSRIs](#) (e.g., [escitalopram](#) or [fluoxetine](#)) is the treatment for BDD.

Explanation Why

This patient exhibits all the diagnostic criteria for [body dysmorphic disorder](#) (BDD). BDD includes persistent preoccupation with a slight or nonexistent flaw in one's physical appearance that is mild or not observable by others, repetitive behaviors (e.g., mirror checking) or thoughts, and clinically relevant impairment in functioning (e.g., social avoidance).

C - Delusional disorder

Explanation Why

Although absent [insight](#) is common in this patient's condition, [delusional](#) beliefs that are solely limited to one's physical appearance (e.g., his belief that he is scrawny and his [hair](#) is thinning, which is not evident on his [physical exam](#)) are not typical of [delusional disorder](#). Common themes of [delusional disorder](#) include mind-reading, persecution, [grandeur](#), or [erotomania](#) (belief that someone

else is in love with them). [Delusional disorder](#) does not typically cause significant functional impairment (e.g., social withdrawal), as seen in this patient.

D - Obsessive compulsive disorder

Explanation Why

This patient exhibits uncontrollable thoughts (i.e., [obsessions](#) about his physical appearance) followed by compulsive activities (i.e., repetitive mirror checking), which are characteristic of [obsessive-compulsive disorder](#). However, his [obsessions](#) are only limited to physical appearance, whereas individuals with OCD typically have multiple [obsessions](#) (e.g., need for order, fear of contamination or disease, hoarding). If [obsessions](#) or [compulsions](#) are restricted to one area of life (e.g., preoccupation with food in [eating disorder](#), hair pulling in [trichotillomania](#), concerns with appearance as seen here), another diagnosis is more likely.

E - Binge eating disorder

Explanation Why

[Binge eating disorder](#) is characterized by frequent episodes of eating large portions of food in a short period of time, with patients feeling a lack of control over how much or how quickly they eat and typically feeling guilty thereafter. This patient overeats out of a [delusional](#) belief that he is underweight and scrawny, not because he cannot control himself. [Binge eating disorder](#) is much more common in females and many patients are clinically [obese](#).

F - Generalized anxiety disorder

Explanation Why

[Generalized anxiety disorder](#) results in excessive anxiety that persists for ≥ 6 months and revolves around certain themes (e.g., an individual's occupation, a break-in) but is not focused on a single specific fear. This patient's anxiety is only focused on his physical appearance.

Question # 16

A 40-year-old woman comes to the therapist for weekly psychotherapy. She was diagnosed with major depressive disorder and anxiety after her divorce 1 year ago. During last week's appointment, she spoke about her ex-husband's timidity and lack of advancement at work; despite her urging, he never asked for a raise. Today, when the therapist asks how she is doing, she replies, "If there's something you want to know, have the courage to ask me! I have no respect for a man who won't speak his mind!" The patient's behavior can be best described as an instance of which of the following?

	Answer	Image
A	Transference	
B	Displacement	
C	Projection	
D	Passive aggression	
E	Reaction formation	
F	Externalization	

Hint

This woman described her ex-husband as being timid last week and now reacts to a conversational formality as if the therapist is behaving timidly.

Correct Answer

A - Transference

Explanation But

[Countertransference](#) is a similar phenomenon in which clinicians project feelings about important persons onto patients (e.g., by viewing patients as their children).

Explanation Why

[Transference](#) is a phenomenon in which a patient projects feelings (positive and/or negative) about important persons onto the clinician. This woman projects her frustrations about her ex-husband's timidity onto the therapist. [Transference](#) is not a type of defense mechanism.

B - Displacement

Explanation Why

[Displacement \(psychiatry\)](#) is an [immature defense mechanism](#) in which an individual redirects impulses and emotions from a target that is perceived as threatening or unacceptable to another that is perceived as less threatening or more acceptable. Though this woman directs her frustrations about her ex-husband's timidity to the therapist, she has confronted her ex-husband in the past and is less likely to perceive him as a threatening or unacceptable target.

C - Projection

Explanation Why

[Projection \(psychiatry\)](#) is an [immature defense mechanism](#) in which an individual projects an unacceptable internal impulse onto an external source. If this woman were frustrated at her therapist and accused the therapist of being frustrated at her, she would exhibit this defense mechanism.

D - Passive aggression

Explanation Why

[Passive aggression](#) is an [immature defense mechanism](#) in which an individual demonstrates negative feelings in an indirect, nonconfrontational manner. If this woman did not confront her ex-husband about his timidity and instead expressed her discontent through passive behaviors such as deliberate failure to contribute to shared responsibilities, she would exhibit this defense mechanism.

E - Reaction formation

Explanation Why

[Reaction formation](#) is an [immature defense mechanism](#) in which an individual replaces an unacceptable internal impulse with its opposite. If this woman were frustrated with her therapist but instead treated her with exaggerated kindness, she would exhibit this defense mechanism.

F - Externalization

Explanation Why

[Externalization \(psychiatry\)](#) is an [immature defense mechanism](#) in which an individual projects internal characteristics (e.g., moods, attitudes) onto the external world. If this woman projected her frustrations about her husband's timidity onto the therapist and believed that the therapist was frustrated with her husband, she would exhibit this defense mechanism.

Question # 17

A 58-year-old man with hypertension and dyslipidemia comes to the physician for a routine health maintenance examination. He says he feels well. He is 180 cm (5 ft 11 in) tall and weighs 103 kg (227 lb); BMI is 32 kg/m^2 . His BMI last year was 27 kg/m^2 . When asked about his diet, he says, "Being overweight runs in my family. Rather than fight it, I just try to enjoy myself and eat what I want." Which of the following defense mechanisms best describes the patient's response to the physician?

	Answer	Image
A	Denial	
B	Rationalization	
C	Primitive idealization	
D	Fantasy	
E	Distortion	
F	Intellectualization	

Hint

The patient is using his own logic to avoid taking responsibility for his diet and weight.

Correct Answer

A - Denial

Explanation Why

[Denial \(psychiatry\)](#) is an [immature defense mechanism](#) in which the individual consciously avoids anxiety-provoking thoughts by refusing to accept reality. It is a common early response to bad news (e.g., refusing to acknowledge a cancer diagnosis). It is also sometimes seen in patients with [substance use disorders](#), who often deny having a problem.

B - Rationalization

Explanation Why

[Rationalization](#) is a [neurotic defense mechanism](#) that involves offering excuses or rational explanations in an attempt to justify behaviors, attitudes, or beliefs to avoid self-blame. The way in which this patient uses his [family history](#) of [obesity](#) as a rationale for overeating and his own weight is therefore an example of [rationalization](#).

C - Primitive idealization

Explanation Why

In [primitive idealization](#), an individual does not reflect critically on something or someone he/she has classified as “good.” Any perceived deviation from the idealized notion he/she has of someone or something is immediately rationalized as being a result of a personal failure or shortcoming (e.g., a woman who is in an abusive marriage but attributes her partner's behavior to her failure to be a good wife).

D - Fantasy

Explanation Why

[Fantasy \(psychiatry\)](#) is an [immature defense mechanism](#) in which the individual withdraws into fantasy to avoid internal and external sources of conflict (e.g., a homeless man who pretends to be rich and always daydreams about running his own corporation).

E - Distortion

Explanation Why

[Distortion \(psychiatry\)](#) is an [immature defense mechanism](#) in which the individual reshapes his/her perception of an external reality (e.g., an upsetting event) to suit his/her inner needs. An example of [distortion \(psychiatry\)](#) might be someone who maintains they were abandoned by their family when they actually ran away from home.

F - Intellectualization

Explanation Why

[Intellectualization](#) is an [immature defense mechanism](#) that refers to the excessive reliance on facts and logic to avoid acknowledging or confronting one's emotions (e.g., excessively investigating the pathophysiology of a terminal illness instead of reacting to the anxiety brought on by the diagnosis).

Question # 18

A senior medicine resident receives negative feedback on a grand rounds presentation from his attending. He is told sternly that he must improve his performance on the next project. Later that day, he yells at his medical student for not showing enough initiative, though he had voiced only satisfaction with the student's performance up until this point. Which of the following psychological defense mechanisms is he demonstrating?

	Answer	Image
A	Transference	
B	Countertransference	
C	Externalization	
D	Displacement	
E	Projection	

Hint

Another example of this defense mechanism would be a student yelling at his dog after being told by his teacher that he has detention.

Correct Answer

A - Transference

Explanation Why

[Transference](#) refers to the unconscious redirection of feelings (positive or negative) from a past experience (often from childhood) with one object to a current experience with another object that has a perceived or real similarity to the first object. For example, the senior resident decides to yell at an intern who unconsciously reminds him of a former classmate who used to bully him in school. Within the context of [psychoanalysis](#), the term [transference](#) refers to the projection of unconscious feelings by the patient onto the therapist.

B - Countertransference

Explanation Why

[Countertransference](#) is a term used in [psychoanalysis](#) to refer to the effect that the patient has on the psychotherapist. [Countertransference](#) is not a defense mechanism.

C - Externalization

Explanation Why

[Externalization \(psychiatry\)](#) is a [neurotic defense mechanism](#) in which the individual attributes his/her internal characteristics to the outside world but does not realize that he/she is actually the one with those characteristics. For example, a scientist who is collaborating with a statistician claims that they haven't been productive because the statistician is extremely lazy when it is actually the scientist who is lazy.

D - Displacement

Explanation Why

[Displacement \(psychiatry\)](#) is a [neurotic defense mechanism](#) in which an individual redirects negative emotions from its real target to a neutral third party. The neutral third party is often a subordinate or less threatening entity. The senior resident is displacing his anger at his attending to his medical student.

E - Projection

Explanation Why

[Projection \(psychiatry\)](#) is an [immature defense mechanism](#) in which the individual attributes his/her thoughts, emotions, or behavior to the thoughts, emotions, or behavior of another individual(s). For example, the senior resident had a poor performance because he was lazy; he attributes the student's poor performance to laziness as well when the student's poor performance could actually have been the result of ill health.

Question # 19

A 5-year-old boy is brought to the physician by his mother because he claims to have spoken to his recently-deceased grandfather. The grandfather, who lived with the family and frequently watched the boy for his parents, died 2 months ago. The boy was taken out of preschool for 3 days after his grandfather's death but has since returned. His teachers report that the boy is currently doing well, completing his assignments, and engaging in play with other children. When asked about how he feels, the boy becomes tearful and says, "I miss my grandpa. I sometimes talk to him when my mom is not around." Which of the following is the most likely diagnosis?

	Answer	Image
A	Brief psychotic disorder	
B	Adjustment disorder	
C	Normal grief	
D	Schizophreniform disorder	
E	Persistent complex bereavement	
F	Major depressive disorder	

Hint

The patient experienced a hallucination of his recently deceased grandfather in the setting of intermittent feelings of loss and adequate functioning.

Correct Answer

A - Brief psychotic disorder

Explanation Why

[Brief psychotic disorder](#) is marked by [psychotic symptoms](#) lasting between one day and one month and is triggered by a stressful situation. In the setting of bereavement, audiovisual [hallucinations](#) of the deceased are not considered pathologic. Furthermore, the boy's symptoms have lasted for two months, which places him outside of the timeframe for [brief psychotic disorder](#).

B - Adjustment disorder

Explanation Why

[Adjustment disorder](#) is a maladaptive response to a stressor that lasts for three to six months following resolution of the stressor. It is marked by inappropriate distress in relation to societal or cultural norms, as well as impaired functioning. Although the death of the boy's grandfather represents a stressor, he has not displayed symptoms of significant emotional distress or functional impairment.

C - Normal grief

Explanation Why

This patient is experiencing [normal grief](#) following the death of his grandfather. His tearfulness and sadness when he talks about his grandfather are normal emotional responses following the death of a loved one. [Hallucinations](#) of the deceased individual can occur during [grief](#) and are not considered pathologic as long as other [psychotic symptoms](#) are not present. The boy's normal functioning in school and engagement with peers further suggest a [normal grief](#) response to an acute emotional stressor.

D - Schizophreniform disorder

Explanation Why

[Schizophreniform disorder](#) is characterized by periods of [psychosis](#) and declining function that last from one to six months. Although the boy has been having [hallucinations](#) of his deceased grandfather, these are not considered pathologic in the setting of bereavement. The patient does not display any other positive symptoms ([delusions](#), [illusions](#), disorganized speech) or negative symptoms of [psychosis](#).

E - Persistent complex bereavement

Explanation Why

[Persistent complex bereavement disorder](#) is a state of pathologic grieving that lasts for at least six to twelve months following the death of a close relation. It is marked by a significant yearning for the deceased and marked impairment of function in daily life and can be accompanied by [hallucinations](#) of the deceased. This child has only been grieving for two months and has been functioning normally at school.

F - Major depressive disorder

Explanation Why

[Major depressive disorder](#) is a [mood disorder](#) marked by two weeks of depressed mood and at least five of the following symptoms: sleep disturbance, loss of interest, feelings of guilt or worthlessness, loss of energy, difficulty concentrating, appetite changes, psychomotor retardation, and [suicidal ideation](#). [Major depressive disorder](#) often causes significant impairment of function in daily life. Although the patient is sad about the death of his grandfather, he does not display any of the diagnostic features of [major depressive disorder](#) and has had no impairment of function in his daily life.

Question # 20

An otherwise healthy 55-year-old woman comes to the physician because of a 7-month history of insomnia. She has difficulty initiating sleep, and her sleep onset latency is normally about 1 hour. She takes melatonin most nights. She avoids consuming alcohol and caffeine before bedtime and has begun to exercise every other afternoon. She also does not watch TV or use her phone shortly before she goes to bed. The physician gives the following recommendations: when unable to fall asleep within 20 minutes, leave the bedroom to read or listen to music; return only when sleepy; use the bed only for sleeping and having sex. These recommendations are best classified as which of the following?

	Answer	Image
A	Relaxation	
B	Stimulus control therapy	
C	Improved sleep hygiene	
D	Cognitive behavioral therapy	
E	Sleep restriction	

Hint

These types of recommendations conceptualize falling asleep as an act that produces reinforcement (sleep). The above set of instructions is designed to strengthen the bed and bedroom as cues for sleep and weaken them as cues for non-sleep activities.

Correct Answer

A - Relaxation

Explanation Why

While reading and listening to music are generally considered relaxing activities, relaxation therapy for [insomnia](#) refers to techniques such as [biofeedback](#), progressive muscle relaxation, and abdominal breathing.

B - Stimulus control therapy

Explanation Why

The physician's recommendation of rising from bed after 20 minutes of being unable to sleep and returning only when sleepy is an example of stimulus control therapy, a common behavioral treatment for [insomnia](#). The goal is to reestablish the bed as a strong cue for sleep by strengthening sleep-compatible associations with the bedroom environment and removing sleep-incompatible ones.

C - Improved sleep hygiene

Explanation Why

[Sleep hygiene](#) refers to general patient education about diet, exercise, [substance use](#), and environmental factors (e.g., light, noise, bedding, temperature) that can be positive or negative for sleep. This patient's avoidance of [caffeine](#), alcohol, and exposure to cell phone and TV screens before bedtime, as well as her exercise regimen, are examples of improved [sleep hygiene](#). The physician's instructions describe a more specific behavioral intervention designed to associate the patient's bedroom with sleep.

D - Cognitive behavioral therapy

Explanation Why

[Cognitive behavioral therapy](#) would involve aspects of the physician's recommendations for reassociating the bedroom with sleep. However, [CBT](#) is a multi-component treatment approach and would require this patient to come in for multiple sessions.

E - Sleep restriction

Explanation Why

[Sleep restriction](#) can be used in patients with chronic [insomnia](#) to reduce [sleep latency](#). This intervention is characterized by deliberate, controlled limitation of the time spent in bed to the patient's estimated average sleep time in an attempt to consolidate fragmented sleep and decrease [sleep latency](#). The physician's recommendations are not aimed to restrict the total time spent in bed. Instead, the physician's instructions describe a more specific behavioral intervention to associate the patient's bedroom with sleep.

Question # 21

A 32-year-old woman is brought to the emergency department by her neighbors 30 minutes after they found her unconscious in her yard. Her neighbors report that she has been spending more time at home by herself because she recently lost her job. On arrival, she is unable to provide a history. Her pulse is 76/min, respirations are 13/min, and blood pressure is 114/72 mm Hg. Examination shows significant weakness of the left upper and lower extremities. She is unable to plantarflex the ankle while supine. She is able to stand on her toes. Her gait is unsteady. Deep tendon reflexes are 3+ and symmetric. A CT scan of the head shows no abnormalities. An MRI of the brain and MR angiography show no abnormalities. Which of the following is the most likely diagnosis?

	Answer	Image
A	Conversion disorder	
B	Factitious disorder	
C	Malingering	
D	Somatic symptom disorder	
E	Acute stress disorder	
F	Acute hemorrhagic stroke	

Hint

This patient presents with a neurologic deficit that manifests inconsistently; she is unable to plantarflex the ankle while supine but can stand on her toes.

Correct Answer

A - Conversion disorder

Explanation But

Other manifestations of [conversion disorder](#) include [seizures](#), movement and speech disorders, sensory disturbances, and visual impairment.

Explanation Why

This patient has [conversion disorder](#), a condition that manifests with neurologic symptoms that are inconsistent with neurologic disease. A characteristic finding in patients with [conversion disorder](#) is a neurologic deficit that manifests inconsistently during an examination, such as this patient's transient inability to [plantarflex](#) the ankles. This condition is more common among young women and typically develops after an acute stressor (e.g., trauma, interpersonal conflict). The diagnosis of [conversion disorder](#) requires thorough evaluation and ruling out of other possible diagnoses, such as a [cerebrovascular accident](#) in this patient with unilateral weakness and an unsteady gait after a loss of consciousness.

B - Factitious disorder

Explanation Why

[Factitious disorder](#) is a condition in which patients intentionally falsify manifestations of illness to assume the role of a sick patient (primary gain). Symptoms often manifest inconsistently during an examination (e.g., transient inability to [plantarflex](#) the toes). However, there is no indication that this patient is intentionally falsifying her symptoms or seeking primary gain. Patients usually also have a history of multiple health care visits, are evasive in providing history, and often refuse access to prior medical records.

C - Malingering

Explanation Why

[Malingering](#) involves the falsification of manifestations of illness to attain a [secondary gain](#) such as financial [compensation](#) or time off from work. Symptoms often manifest inconsistently during an examination (e.g., transient inability to [plantarflex](#) the toes). However, there is no indication that this patient is intentionally falsifying her symptoms or seeking a [secondary gain](#). In addition, patients who [malingering](#) typically avoid extensive diagnostic procedures.

D - Somatic symptom disorder

Explanation Why

[Somatic symptom disorder](#) is a condition in which a patient has persistent somatic symptoms (e.g., [headache](#), fatigue) that result in excessive thoughts and/or behaviors that disrupt daily life. This patient appears anxious and has weakness and an unsteady gait. However, a diagnosis of [somatic symptom disorder](#) requires symptoms to persist for ≥ 6 months.

E - Acute stress disorder

Explanation Why

[Acute stress disorder](#) is a condition that develops after a [traumatic event](#) and manifests with symptoms such as anxiety, [intrusive thoughts](#), and negative mood that last between 3 days and 1 month. This condition does not cause somatic manifestations (e.g., weakness, unsteady gait).

F - Acute hemorrhagic stroke

Explanation Why

Acute [hemorrhagic stroke](#) can cause unilateral weakness and an unsteady gait after a loss of consciousness. However, this condition manifests with abnormalities on neuroimaging (e.g., [hyperdense](#) lesions on [CT scan](#)), which are not seen in this patient.

Question # 22

A 42-year-old man comes to the physician because of a 3-year history of urinating up to 20 times each day. He has not had any dysuria and nocturia. He has been evaluated by several urologists but has not received a specific diagnosis despite extensive diagnostic testing. Various pharmacologic treatments have not improved his symptoms. He quit his job 1 year ago and stopped attending social events because his frequent urination has been disruptive. He spends most of his time at the library trying to learn what could be causing his symptoms. He would like to undergo a CT scan of his entire body to evaluate for cancer. Physical examination and laboratory studies show no abnormalities. Mental status examination shows a depressed mood and constricted affect. There is no evidence of suicidal ideation. Which of the following is the most likely explanation for this patient's symptoms?

	Answer	Image
A	Illness anxiety disorder	
B	Malingering	
C	Atypical depression	
D	Somatic symptom disorder	
E	Adjustment disorder	
F	Recurrent urinary tract infections	

Hint

This man's frequent urination has caused him significant distress, and he spends a significant amount of time attending to his health concerns. Patients with this man's condition typically have a history of extensive diagnostic testing.

Correct Answer

A - Illness anxiety disorder

Explanation Why

[Illness anxiety disorder](#) manifests with excessive health-related behaviors (e.g., frequent evaluation and extensive diagnostic testing) and preoccupation related to illness despite having no physical symptoms. This patient's frequent urination is a significant physical symptom.

B - Malingering

Explanation Why

[Malingering](#) is characterized by feigned symptoms or false claims of having an illness to obtain [secondary gain](#) (e.g., time off from work). Patients often present with vague complaints that do not conform to a known medical condition and insist on extensive medical evaluation. Though this patient requests additional testing, there is no clear attempt to obtain [secondary gain](#) in this case.

C - Atypical depression

Explanation Why

[Atypical depression](#) is diagnosed in individuals with depression, [mood](#) reactivity, and physical complaints without an identifiable somatic cause. An increased need for sleep and leaden paralysis are the characteristic features, but patients may also present with [pain](#) and generalized discomfort, none of which is seen in this patient. While his [mental status examination](#) showed a depressed mood and constricted affect, the abnormal preoccupation with his health is more suggestive of a different diagnosis.

D - Somatic symptom disorder

Explanation But

Management involves addressing psychological concerns and scheduling regular visits with a single primary care physician to minimize unnecessary evaluation.

Explanation Why

This patient has [somatic symptom disorder](#), a condition characterized by ≥ 6 months of excessive thoughts, feelings, and/or behaviors related to a somatic symptom (e.g., [heartburn](#), fatigue, [headache](#), [pain](#)). His previous diagnostic workup did not reveal any known medical etiology of his frequent urination. Patients with this condition typically show a preoccupation with their health and develop significant distress, anxiety, and fear of severe illness.

E - Adjustment disorder

Explanation Why

[Adjustment disorder](#) manifests with a maladaptive emotional and/or behavior response that causes distress and impaired functioning within 3 months after the onset of a stressor. Though this patient experiences significant distress and impaired social functioning, he does not have a history of a specific stressful event.

F - Recurrent urinary tract infections

Explanation Why

[Urinary tract infections](#) can manifest with frequent urination but typically also cause other symptoms such as [dysuria](#), urgency, and suprapubic [pain](#). In addition, [urinalysis](#) of men with [urinary tract infections](#) almost always shows [pyuria](#), but this man's laboratory evaluation showed no abnormalities.

Question # 23

A 38-year-old man comes to the physician because of persistent sadness and difficulty concentrating for the past 6 weeks. During this period, he has also had difficulty sleeping. He adds that he has been “feeling down” most of the time since his girlfriend broke up with him 4 years ago. Since then, he has only had a few periods of time when he did not feel that way, but none of these lasted for more than a month. He reports having no problems with appetite, weight, or energy. He does not use illicit drugs or alcohol. Mental status examination shows a depressed mood and constricted affect. Which of the following is the most likely diagnosis?

	Answer	Image
A	Major depressive disorder	
B	Bipolar affective disorder	
C	Cyclothymic disorder	
D	Persistent depressive disorder	Duration of symptoms required for diagnosis Diagnosis is possible Mood disorders - Mania (in bipolar disorder): > 1 w - Major depressive disorder: > 2 w - Persistent complex bereavement disorder: > 6 m - Persistent depressive disorder (dysthymia): > 2 y - Cyclothymic disorder: > 2 y Psychotic disorders - Schizoaffective disorder: > 2 w - Delusional disorder: > 1 m - Brief psychotic disorder: < 1 m - Schizophreniform disorder: 1-6 m - Schizophrenia: > 6 m Anxiety disorders - Panic disorder: > 1 m - Specific phobias: > 6 m - Acute stress disorder: < 1 m - Post-traumatic stress disorder: > 1 m - Adjustment disorder: < 6 m - Generalized anxiety disorder: > 6 m Sleep disorders - Narcolepsy: > 3 m Neurodevelopmental disorders - Attention deficit hyperactivity disorder: > 6 m - Tourette disorder: > 1 y - Oppositional defiant disorder: > 6 m - Conduct disorder: > 1 y - Disruptive mood dysregulation disorder: > 1 y Disruptive, impulse-control, and conduct disorders Symptom duration
E	Adjustment disorder with depressed mood	

Hint

This patient's symptoms have been present for most days over the past 4 years without a symptom-free period > 2 consecutive months, providing a clue to the diagnosis.

Correct Answer

A - Major depressive disorder

Explanation Why

Although this patient has been depressed for > 2 weeks, he only presents with four of the symptoms listed in the DSM-V criteria for [major depressive disorder](#) (depressed mood, [anhedonia](#), sleep disturbances, and poor concentration). [Diagnosis of major depressive disorder](#) requires the presence of ≥ 5 criterion A symptoms (one of which must be [anhedonia](#) or depressed mood) as well as clinically significant distress or impaired functioning in important areas of life (e.g., work).

B - Bipolar affective disorder

Explanation Why

Depressive episodes in [bipolar disorder](#) can present with sadness, [anhedonia](#), sleep disturbances, and poor concentration, as seen in this patient. However, the diagnosis of [bipolar disorder](#) requires the presence of at least one [manic episode](#) or [hypomanic episode](#), which this patient has not had.

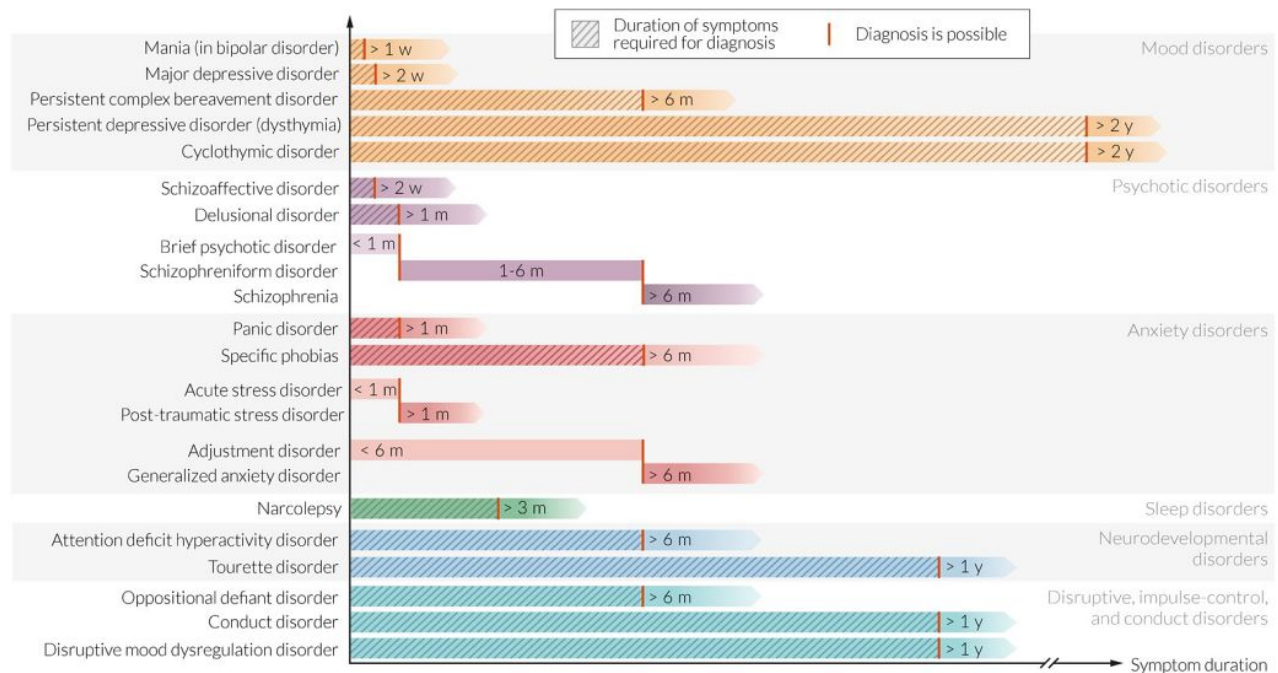
C - Cyclothymic disorder

Explanation Why

Depressive symptoms in [cyclothymic disorder](#) can present with sadness, [anhedonia](#), sleep disturbances, and poor concentration, as seen in this patient. Diagnostic criteria for [cyclothymic disorder](#) include [mood](#) swings with distinct periods of depressive symptoms and distinct periods of [manic](#) or [hypomanic](#) symptoms for ≥ 2 years (or ≥ 1 year in the case of children), as well as symptom-free periods that do not exceed 2 months. Although this patient fulfills the second criterion, he lacks a history of distinct, alternating periods of depression and [mania/hypomania](#). In addition, the diagnosis requires that the patient's condition cannot be better explained by [bipolar disorder](#), [major depressive episode](#), or [hypomanic episode/manic episode](#).

D - Persistent depressive disorder

Image



Explanation Why

This patient presents with a depressed mood, difficulty sleeping, and poor concentration, which is causing psychosocial impairment. These symptoms have been present for more days than not for the past 4 years in the absence of [substance use](#), and the patient was not asymptomatic for > 2 consecutive months during this time. Accordingly, he meets the criteria for [persistent depressive disorder \(dysthymia\)](#). He would likely benefit from treatment with an [SSRI](#) and/or [psychotherapy](#).

E - Adjustment disorder with depressed mood

Explanation Why

[Adjustment disorder with depressed mood](#) can manifest with sadness, [anhedonia](#), sleep disturbances, and poor concentration, all of which are seen in this patient. However, the diagnosis requires the

development of depressive symptoms within 3 months of a clear psychosocial stressor and resolution of symptoms within 6 months after termination of the stressor. This patient has had symptoms for the past 4 years, and there is no evidence to suggest that his [mood](#) is a reaction to a recent stressor.

Question # 24

A 41-year-old man comes to the physician because of a 7-month history of sleep disturbances and restlessness. He has difficulty falling asleep and lies awake worrying about his family, the next day's meetings, and finances. Eight months ago, he started a new job as a product manager. He can no longer concentrate on his tasks at work. He feels tense most days and avoids socializing with his friends. He has a history of drinking alcohol excessively during his early 20s, but he has not consumed alcohol for the past 10 years. He appears anxious. Physical examination shows no abnormalities. The physician recommends psychotherapy and medication. The patient states that he is concerned about the side effects of psychiatric medications. He has struggled intermittently with erectile dysfunction in the past and would like a medication that will not further aggravate his difficulties. Treatment with which of the following drugs is most appropriate in this patient?

	Answer	Image
A	Escitalopram	
B	Propranolol	
C	Clonazepam	
D	Amitriptyline	
E	Buspirone	
F	Mirtazapine	

Hint

Prolonged anxiety (> 6 months) about various aspects of daily life (e.g., job, health, money, family) that disrupts regular activities and functioning is suggestive of generalized anxiety disorder (GAD).

Correct Answer

A - Escitalopram

Explanation Why

[SSRIs](#), such as [escitalopram](#), are considered first-line in the treatment of [generalized anxiety disorder](#) (GAD). [SSRIs](#) are generally safe but can have an array of side effects, and [sexual dysfunction](#) is very common. Although [SSRIs](#) can help maintain erections by delaying orgasm (its MOA as treatment of [premature ejaculation](#)), it is actually associated with a decreased libido and difficulty acquiring an [erection](#). Thus, this patient's [erectile dysfunction](#) would likely worsen with initiation of an [SSRI](#), and therefore, it is not the preferred medication for him.

B - Propranolol

Explanation Why

[Propranolol](#), a nonselective [beta blocker](#), can be used as an adjunctive medication in the primary treatment of [panic disorder](#), a disorder of recurrent, unexpected [panic attacks](#). Since this patient's symptoms are not consistent with [panic disorder](#), a different medication would be more appropriate.

C - Clonazepam

Explanation Why

[Clonazepam](#), a [benzodiazepine](#), can be used as an adjunctive medication in the treatment of [generalized anxiety disorder](#). While effective in improving symptoms in the short-term, [benzodiazepines](#) should never be used in long-term management because of their high potential for addiction and negative side-effect profile. In this patient, the history of risky alcohol use puts him at increased risk of developing dependence and abuse, so this class of medications should be avoided.

D - Amitriptyline

Explanation Why

[Amitriptyline](#) and other [tricyclic antidepressants](#) can be used in the treatment of [generalized anxiety disorder](#). However, they are no longer considered the first-line treatment due to their negative side-effect profile ([anticholinergic](#) symptoms) and risk of overdose.

E - Buspirone

Explanation Why

[Buspirone](#) can be used to treat [generalized anxiety disorder](#) (GAD). While [SSRIs](#) or [SNRIs](#) are generally considered first-line for treatment of GAD, [buspirone](#) is an effective [anxiolytic drug](#) with no potential for dependence and its favorable side effect profile makes it the best option for this patient with [sexual dysfunction](#). Pharmacologic treatment should be continued for at least 12 months to minimize the risk of relapse. Because the time to onset of clinical response to [buspirone](#) is commonly delayed, a trial with this drug should be continued for several weeks.

F - Mirtazapine

Explanation Why

[Mirtazapine](#) is primarily used for the treatment of [major depressive disorder](#). It can also be considered in patients with [generalized anxiety disorder](#) but is generally reserved for cases in which first-line and second-line medications have not been effective, as it can actually exacerbate anxiety in the first weeks of treatment or during periods of dose changes.

Question # 25

A 21-year-old man comes to the physician because of nervousness and difficulty sleeping over the past 2 weeks. Three months ago, he started a new team project at his job. He says that he has trouble falling asleep at night because he thinks about the project. He insists on checking the work of his teammates and spends several hours each week making elaborate lists and schedules. He refuses to let others take on more tasks because he thinks that only he can complete them satisfactorily. The project deadline has already been postponed once. He says, "My teammates never understand how important it is to do things the right way." Ever since high school, he has used the majority of his time to plan out assignments and does not have time to regularly participate in social activities. Which of the following is the most likely diagnosis?

	Answer	Image
A	Obsessive-compulsive personality disorder	
B	Obsessive-compulsive disorder	
C	Specific phobia	
D	Generalized anxiety disorder	
E	Schizoid personality disorder	
F	Adjustment disorder with mixed anxiety and depressed mood	

Hint

This man's beliefs are egosyntonic (i.e., he views his perceptions and behavior as reasonable and appropriate).

Correct Answer

A - Obsessive-compulsive personality disorder

Explanation But

Perfectionism and [obsession](#) with control are often [egosyntonic](#).; [Egosyntonic](#) is a descriptor used in [psychoanalysis](#) for thoughts and behavior patterns that are in agreement with an individual's self-image;

Explanation Why

[Obsessive-compulsive personality disorder \(OCPD\)](#) is a [personality disorder](#) characterized by inflexibility, excessive perfectionism, and preoccupation with order and control. Patients with [OCPD](#) often make lists and schedules to an extent that the main details of a task or activity are lost; their perfectionism interferes with task completion and social relationships, as seen in this case. Therapeutic options for [OCPD](#) include [cognitive behavioral therapy](#), [psychodynamic psychotherapy](#), relaxation, and supplemental treatment with [antidepressants](#). However, treatment is difficult because this [personality disorder](#) is [egosyntonic](#).

B - Obsessive-compulsive disorder

Explanation Why

[Obsessive-compulsive disorder](#) manifests with recurrent worries that cause distress and [insomnia](#). However, patients with OCD typically have very intrusive and time-consuming thoughts, images, or urges and show repetitive behaviors that are performed in response to these [intrusions](#). Additionally, OCD is characteristically [egodystonic](#); there is no indication that this man views his behavior as inappropriate.

C - Specific phobia

Explanation Why

[Specific phobias](#) are characterized by persistent and intense fear and/or anxiety due to a specific situation or object. This patient has anxiety better explained by another diagnosis and does not express fear of his stressors. Additionally, [specific phobias](#) can only be diagnosed if symptoms have been present for ≥ 6 months.

D - Generalized anxiety disorder

Explanation Why

[Generalized anxiety disorder](#) can manifest with recurrent worrying and [insomnia](#). However, it usually involves severe anxiety caused by various aspects of daily life and significant social or occupational impairment; this patient is primarily worried about an upcoming project rather than multiple facets of life. Additionally, GAD can only be diagnosed if symptoms have been present for ≥ 6 months.

E - Schizoid personality disorder

Explanation Why

[Schizoid personality disorder](#) is characterized by limited emotional expression and voluntary social withdrawal. There is no evidence of limited emotional range in this patient and he does not participate in social activities because of lack of time.

F - Adjustment disorder with mixed anxiety and depressed mood

Explanation Why

[Adjustment disorder](#) with mixed anxiety and depressed mood can manifest with worry and distress that occurs in response to a psychosocial stressor within 3 months of the stressor's onset. Although this patient started a new project 3 months ago, his insistence on order predates this event.

Question # 26

A 26-year-old man is brought to the emergency department by his wife because of bizarre and agitated behavior for the last 6 weeks. He thinks that the NSA is spying on him and controlling his mind. His wife reports that the patient has become withdrawn and at times depressed for the past 3 months. He lost his job because he stopped going to work 4 weeks ago. Since then, he has been working on an invention that will block people from being able to control his mind. Physical and neurologic examinations show no abnormalities. On mental status examination, he is confused and suspicious with marked psychomotor agitation. His speech is disorganized and his affect is labile. Which of the following is the most likely diagnosis?

	Answer	Image
A	Paranoid personality disorder	
B	Delusional disorder	
C	Schizophreniform disorder	
D	Schizophrenia	
E	Schizoaffective disorder	
F	Brief psychotic disorder	
G	Schizotypal personality disorder	

Hint

This patient presents with acute agitation with disorganized speech and behavior following a 6-week history of delusions, social withdrawal, and depressed mood, affecting his social and occupational functioning.

Correct Answer

A - Paranoid personality disorder

Explanation Why

[Paranoid personality disorder](#), like all [personality disorders](#), is a pervasive, inflexible, and maladaptive personality pattern that arises during [adolescence](#), leads to distress or impairment, and is stable over time. Patients are recurrently suspicious of other people's intentions, often reading hidden meaning or threats into benign events, and do not confide in others due to fear of being deceived or exploited. This diagnosis is unlikely given the fact that he started developing symptoms 3 months ago.

B - Delusional disorder

Explanation Why

Although this patient exhibits signs consistent with [delusional disorder](#) (e.g., [delusions](#), [paranoia](#)), he also has other symptoms, including disorganized speech and behavior, social withdrawal, and depressed mood that affect his social and occupational functioning. [Delusional disorder](#) is therefore an unlikely diagnosis.

C - Schizophreniform disorder

Explanation Why

[Schizophreniform disorder](#) is a clinical diagnosis that is made using the same diagnostic criteria as [schizophrenia](#). The main difference, however, is the duration of the disorder. [Schizophreniform disorder](#) is diagnosed in patients who present with [delusions](#), [hallucinations](#), disorganized speech, and/or negative symptoms that impair social, occupational, and person functioning and lasts for less than 6 months. If symptoms persist for > 6 months, the diagnosis must be changed to [schizophrenia](#). About one-third of patients recover, while the other two-thirds go on to develop [schizophrenia](#) or [schizoaffective disorder](#).

D - Schizophrenia

Explanation Why

Although this patient's clinical presentation is consistent with [schizophrenia](#), [psychotic symptoms](#) must last > 6 months in order to make this diagnosis.

E - Schizoaffective disorder

Explanation Why

[Schizoaffective disorder](#) is characterized by features of [schizophrenia](#) AND major [mood disorder](#) (depression or [bipolar disorder](#)). [Psychotic symptoms](#) must be more dominant than the [mood](#) symptoms, and while [psychosis](#) can occur in the absence of [mood disorders](#), [mood disorders](#) do not occur in the absence of [psychosis](#). This patient showed depressed mood before the onset of [psychotic symptoms](#). Furthermore, [psychosis](#) must have been present for at least 2 weeks in the absence of any [mood](#) disturbance to make the diagnosis.

F - Brief psychotic disorder

Explanation Why

[Brief psychotic disorder](#) is characterized by [psychotic symptoms](#) lasting > 1 day but ≤ 1 month, and are usually triggered by stressful situations. This patient's [psychotic symptoms](#) began 6 weeks ago.

G - Schizotypal personality disorder

Explanation Why

[Schizotypal personality disorder](#), like all [personality disorders](#), is a pervasive, inflexible, and maladaptive personality pattern that arises during [adolescence](#), leads to distress or impairment, and is stable over time. Patients typically exhibit odd, eccentric behavior and describe unusual beliefs and experiences. They may express suspicion of other people's intentions, and social and interpersonal interactions usually cause them discomfort. [Psychotic symptoms](#) would not be expected.

Question # 27

A 19-year-old man is brought to the emergency department by the resident assistant of his dormitory for strange behavior. He was found locked out of his room, where the patient admitted to attending a fraternity party before becoming paranoid that the resident assistant would report him to the police. The patient appears anxious. His pulse is 105/min, and blood pressure is 142/85 mm Hg. Examination shows dry mucous membranes and bilateral conjunctival injection. Further evaluation is most likely to show which of the following?

	Answer	Image
A	Tactile hallucinations	
B	Pupillary constriction	
C	Synesthesia	
D	Decreased appetite	
E	Slurred speech	
F	Sense of closeness to others	
G	Impaired reaction time	

Hint

This patient has paranoia, anxiety, mild tachycardia and hypertension, dry mouth, and conjunctival injection, all of which are features of cannabis intoxication.

Correct Answer

A - Tactile hallucinations

Explanation Why

Tactile [hallucinations](#), as well as auditory and optic [hallucinations](#), can occur in patients with [cocaine](#) intoxication. While [cocaine](#) intoxication can cause [paranoia](#) and [hypertension](#), it usually also causes nausea, sweating, [chest pain](#), hyperthermia, chills, [mydriasis](#), respiratory depression, and [ataxia](#). [Cocaine](#) intoxication does not cause [conjunctival injection](#).

B - Pupillary constriction

Explanation Why

[Miosis](#) is a classic finding in patients with [opioid intoxication](#). Although [opioid intoxication](#) can alter mental status, it usually manifests with [bradycardia](#), [hypotension](#), [hypothermia](#), and pronounced [CNS](#) and respiratory depression (which is often the cause of death in severe overdoses). [Opioid intoxication](#) does not cause [paranoia](#), anxiety, dry mouth, or [conjunctival injection](#).

C - Synesthesia

Explanation Why

Synesthesia can occur in [phencyclidine](#) (PCP) intoxication, which can alter mental status and lead to [tachycardia](#) and [hypertension](#). However, it is more commonly associated with violent behavior and impulsivity, vertical nystagmus, [miosis](#), increased [pain](#) tolerance, [seizures](#), [ataxia](#), and [dysarthria](#). PCP intoxication does not cause anxiety, dry mouth, or [conjunctival injection](#).

D - Decreased appetite

Explanation Why

Decreased appetite is a common finding in patients with [amphetamine](#) intoxication, which can cause [paranoia](#), mild [tachycardia](#), and [hypertension](#). However, [amphetamine](#) intoxication usually causes euphoria, increased libido and attentiveness, [mydriasis](#), hyperthermia, [diaphoresis](#), and [bruxism](#). Binge use can cause neuropsychiatric symptoms such as megalomania, [sleep disorders](#), and [seizures](#).

E - Slurred speech

Explanation Why

Slurred [speech](#) occurs in patients with severe [alcohol intoxication](#). Though alcohol use is common in the university setting, intoxication usually causes agitation, decreased attentiveness, [ataxia](#), nausea, and vomiting. [Alcohol intoxication](#) does not cause [paranoia](#), anxiety, dry mouth, or [conjunctival injection](#).

F - Sense of closeness to others

Explanation Why

A sense of closeness to others can occur in patients with [MDMA](#) intoxication. [MDMA](#) intoxication can cause dry mouth, extreme thirst, [tachycardia](#), and [hypertension](#). However, intoxication typically induces intense euphoria, hyperactivity, and disinhibition rather than the [paranoia](#) and anxiety seen in this patient.

G - Impaired reaction time

Explanation Why

The primary active ingredient in [cannabis](#) is [tetrahydrocannabinol](#), which acts on [cannabinoid receptors](#) and leads to inhibition of [adenylate cyclase](#). In addition to this patient's classic features of dry mouth and red eyes, [cannabis](#) intoxication can lead to impaired reaction time, joviality, dysphoria, [mydriasis](#), increased appetite, impaired concentration and coordination, and, in some cases, [delusional](#) thoughts and [hallucinations](#).

Question # 28

A 22-year-old woman is in her last few months at community college. She has a very important essay due in 2 weeks that will play a big part in determining her final grades. She decides to focus on writing this essay instead and not to worry about her grades until her essay is completed. Which of the following defense mechanisms best explains her behavior?

	Answer	Image
A	Repression	
B	Suppression	
C	Blocking	
D	Dissociation	
E	Displacement	
F	Denial	

Hint

This individual is exhibiting a mature ego defense mechanism, which is the result of conscious effort (unlike other defense mechanisms that operate at a subconscious level). Another example would be a man in a relationship who is about to go abroad for a year without his partner actively choosing to ignore the feeling of loneliness that is starting to build up.

Correct Answer

A - Repression

Explanation Why

[Repression \(psychiatry\)](#) involves the unconscious removal of unpleasant or distressing thoughts from conscious awareness. Repression is a [neurotic defense mechanism](#), and like most ego defenses, it occurs involuntarily; for example, a victim of abuse who does not remember being mistreated.

B - Suppression

Explanation Why

[Suppression \(psychiatry\)](#), a [mature defense mechanism](#), refers to intentionally or consciously choosing not to think about a feeling or thought that provokes anxiety. Other [mature defense mechanisms](#) include: [altruism \(psychiatry\)](#), [humor \(psychiatry\)](#), [sublimation \(psychiatry\)](#), and [anticipation \(psychiatry\)](#).

C - Blocking

Explanation Why

[Blocking \(psychiatry\)](#) may occur when the individual is under a lot of stress, similar to this woman. However, blocking is an [immature defense mechanism](#), and it involves the transient, involuntary interruption of the [thought process](#). For example, a person who suddenly forgets what he/she has to do next.

D - Dissociation

Explanation Why

[Dissociation \(psychiatry\)](#) is a [neurotic defense mechanism](#) that refers to a temporary, subconscious disruption of one's sense of self or personal identity in order to avoid dealing with emotions that may possibly be painful. For example, a person who was mugged recalls the incident as an out-of-body experience.

E - Displacement

Explanation Why

[Displacement \(psychiatry\)](#) is a [neurotic defense mechanism](#) and, like most ego defenses, it typically operates at a subconscious level. An individual exhibiting [displacement \(psychiatry\)](#) redirects emotions from its intended target to a neutral third party; e.g., a manager who has been yelled at by the CEO takes it out on his employees.

F - Denial

Explanation Why

[Denial \(psychiatry\)](#) involves a subconscious refusal to accept unpleasant aspects of a reality that may provoke anxiety (similar to the woman above). However, denial is a [narcissistic defense](#) mechanism and is a common initial response to bad news (e.g., an employee who shows up for work even after having been fired).

Question # 29

A 16-year-old girl comes to the physician because she is worried about gaining weight. She reports that at least twice a week, she eats excessive amounts of food but feels ashamed about losing control soon after. She is very active in her high school's tennis team and goes running daily to lose weight. She has a history of cutting her forearms with the metal tab from a soda can. Her last menstrual period was 3 weeks ago. She is 165 cm (5 ft 5 in) tall and weighs 57 kg (125 lb); BMI is 21 kg/m². Physical examination shows enlarged, firm parotid glands bilaterally. There are erosions of the enamel on the lingual surfaces of the teeth. Which of the following is the most likely diagnosis?

	Answer	Image
A	Obsessive-compulsive disorder	
B	Borderline personality disorder	
C	Bulimia nervosa	
D	Anorexia nervosa	
E	Binge eating disorder	
F	Body dysmorphic disorder	

Hint

Laboratory studies would likely show hypochloremic, hypokalemic metabolic alkalosis.

Correct Answer

A - Obsessive-compulsive disorder

Explanation Why

Patients with [obsessive-compulsive disorder](#) (OCD) suffer from persistent, uncontrollable thoughts ([obsessions](#)) to which they respond with repetitive, habitual behaviors ([compulsions](#)). Although this patient worries about gaining weight, there are no signs that her concerns are obsessive or that her forearm cutting and binge eating are compulsive behaviors performed in response to an [obsession](#).

B - Borderline personality disorder

Explanation Why

While patients with [borderline personality disorder](#) (BPD) may also engage in self-injurious activities such as cutting or burning themselves, BPD is characterized by the inability to maintain interpersonal relationships and a high degree of impulsivity without regard for consequences. Although BPD cannot be completely ruled out in this patient from the information provided, her physical symptoms are more consistent with another diagnosis.

C - Bulimia nervosa

Explanation But

[Eating disorders](#) are often associated with other mental illnesses, including [mood](#) and [personality disorders](#).

Explanation Why

Patients with [bulimia nervosa](#) engage in compulsive binge eating followed by compensatory actions aimed at preventing weight gain. Despite this, patients are of normal weight or slightly underweight ($BMI > 18.5 \text{ kg/m}^2$ or $\geq 10^{\text{th}}$ [percentile](#)). [Physical examination](#) may show the effects of frequent

vomiting, including salivary gland swelling and erosion of tooth [enamel](#) due to [gastric acid](#), as seen in this patient, while [laboratory studies](#) typically show characteristic electrolyte imbalances.

D - Anorexia nervosa

Explanation Why

Patients with [anorexia nervosa](#) are also often young women who fear gaining weight and may present with signs of frequent vomiting (such as the [parotid gland](#) swelling seen here) and electrolyte imbalances. However, unlike this girl with a normal [BMI](#), patients with [anorexia nervosa](#) are significantly underweight ([BMI](#) < 18.5 kg/m² or < 10th [percentile](#)) and are frequently amenorrheic.

E - Binge eating disorder

Explanation Why

[Binge eating disorder](#) is characterized by frequent episodes of overeating, with patients feeling like they have a lack of control over how much or how quickly they eat and typically feeling guilty thereafter, which is seen in this patient. Many patients with [binge eating disorder](#) are [obese](#). However, patients with [binge eating disorder](#) do not attempt to compensate for excess calorie intake and are not preoccupied with gaining weight.

F - Body dysmorphic disorder

Explanation Why

While some patients with [body dysmorphic disorder](#) are concerned about gaining weight, this patient does not display a preoccupation with a specific aspect of her physical appearance, which is characteristic of [body dysmorphic disorder](#). Moreover, [body dysmorphic disorder](#) is a psychiatric diagnosis and would not present with the abnormal [physical examination](#) findings seen in this patient.

Question # 30

A 28-year-old woman comes to the physician because of an 8-hour history of painful leg cramping, a runny nose, and chills. She has also had diarrhea and abdominal pain. She appears irritable and yawns frequently. Her pulse is 115/min. Examination shows cool, damp skin with piloerection. The pupils are 7 mm in diameter and equal in size. Bowel sounds are hyperactive. Deep tendon reflexes are 3+ bilaterally. Withdrawal from which of the following substances is most likely the cause of this patient's symptoms?

	Answer	Image
A	Heroin	
B	Gamma-hydroxybutyric acid	
C	Methamphetamine	
D	Barbiturate	
E	Alcohol	
F	Cannabis	
G	Cocaine	

Hint

To quote John Lennon: “My body is aching, goose-pimple bone, can't see nobody, leave me alone/ my eyes are wide open, can't get to sleep, one thing I'm sure of, I'm in at the deep freeze/ cold turkey has got me on the run.”

Correct Answer

A - Heroin

Explanation But

[Opioid withdrawal](#) causes severe discomfort but is not life-threatening. Treatment involves [buprenorphine/naloxone](#) or [methadone](#).

Explanation Why

This patient has classic signs and symptoms of [heroin withdrawal](#) ([opioid withdrawal](#)), which include [flu-like](#) symptoms (e.g., [rhinorrhea](#), abdominal [pain](#), [diarrhea](#), leg cramps), features of [sympathetic](#) hyperactivity (e.g., [tachycardia](#), [mydriasis](#), [hyperreflexia](#)), [CNS](#) stimulation (e.g., yawning, irritability), and cool, damp [skin](#) with [piloerection](#).

B - Gamma-hydroxybutyric acid

Explanation Why

[Gamma-hydroxybutyric acid withdrawal](#) can cause features of [CNS](#) stimulation (e.g., irritability, [insomnia](#)) and gastrointestinal symptoms (e.g., [diarrhea](#), abdominal [pain](#)), which are seen in this patient. However, [gamma-hydroxybutyric acid](#) withdrawal usually also causes [tremors](#) and increased muscle tone. Moreover, it would not cause [mydriasis](#) or [piloerection](#).

C - Methamphetamine

Explanation Why

[Methamphetamine withdrawal](#) resembles the features of [major depressive disorder](#) (e.g., [insomnia](#) or [hypersomnia](#), [anhedonia](#), appetite changes, lack of energy/motivation, and depressed mood). It does not cause leg cramping, [rhinorrhea](#), [diarrhea](#), yawning, [tachycardia](#), [piloerection](#), or [mydriasis](#).

D - Barbiturate

Explanation Why

Barbiturate withdrawal can cause [CNS](#) stimulation (e.g., [insomnia](#), irritability) and [autonomic dysfunction](#) (e.g., [tachycardia](#), [diarrhea](#)), which are seen in this patient. However, barbiturate withdrawal usually also causes [tremors](#), dysphoria, [delirium](#), and [seizures](#). It can also manifest with life-threatening cardiovascular dysfunction. Barbiturate withdrawal does not cause [rhinorrhea](#), [mydriasis](#), or [piloerection](#).

E - Alcohol

Explanation Why

Patients in the early phase of [alcohol withdrawal](#) (3–36 hours after last drink) can present with irritability, [insomnia](#), abdominal [pain](#), and [diarrhea](#). However, most patients at this stage also develop [tremors](#), which are not seen in this patient. Symptoms can progress to brief [tonic-clonic seizures](#) (6–48 hours after last drink), [alcoholic hallucinosis](#) (12–48 hours after last drink), and, if left untreated, [delirium tremens](#) (48–96 hours after last drink). [Alcohol withdrawal](#) does not cause [rhinorrhea](#) or [piloerection](#).

F - Cannabis

Explanation Why

Cannabis withdrawal can cause irritability and [tachycardia](#), which are seen in this patient. However, cannabis withdrawal usually also causes additional [mood](#) dysfunction (e.g., depression, anxiety), [insomnia](#), and a decreased appetite and would not cause [rhinorrhea](#), [mydriasis](#), leg cramping, [diarrhea](#), [hyperreflexia](#), or [piloerection](#).

G - Cocaine

Explanation Why

Cocaine withdrawal causes a physiological crash characterized by [anhedonia](#), lack of energy/motivation, psychomotor agitation, [miosis](#), vivid dreams, increased appetite, and depressed mood. It does not cause [sympathetic](#) hyperactivity (e.g., [tachycardia](#), [mydriasis](#), [hyperreflexia](#)), [CNS](#) stimulation (e.g., yawning, irritability), or [piloerection](#).

Question # 31

A 42-year-old biochemist receives negative feedback from a senior associate on a recent project. He is placed on probation within the company and told that he must improve his performance on the next project to remain with the company. He is distraught and leaves his office early. When he gives an account of the episode to his wife, she says, "I'll always be proud of you no matter what because I know that you always try your best." Later that night, he tearfully accuses her of believing that he is a failure. Which of the following psychological defense mechanisms is he demonstrating?

	Answer	Image
A	Denial	
B	Projection	
C	Transference	
D	Displacement	
E	Passive aggression	
F	Externalization	

Hint

Another example of this defense mechanism: a man who is attracted to a woman accuses her of subtly flirting with him when she isn't.

Correct Answer

A - Denial

Explanation Why

[Denial \(psychiatry\)](#) involves a subconscious refusal to accept unpleasant aspects of a reality. For example, the biochemist would demonstrate denial if he showed up for work even after having been fired.

B - Projection

Explanation Why

[Projection \(psychiatry\)](#) is an [immature defense mechanism](#) in which the individual attributes his/her thoughts, emotions, or behavior to another individual (or other individuals).

C - Transference

Explanation Why

[Transference](#) refers to the unconscious redirection of feelings (positive or negative) from a past experience (often from childhood) with one object to a current experience with another object that has a perceived or real similarity to the first object. Within the context of [psychoanalysis](#), the term [transference](#) refers to the projection of unconscious feelings by the patient onto the therapist.

D - Displacement

Explanation Why

[Displacement \(psychiatry\)](#) is a [neurotic defense mechanism](#) in which an individual redirects negative emotions from their real target to a neutral third party. The neutral third party is often a subordinate or less threatening entity. For example, the biochemist might receive negative feedback and later yell at his intern, a college student, for not showing enough initiative.

E - Passive aggression

Explanation Why

[Passive aggression](#) refers to the expression of negative feelings towards someone in a non-confrontational way. For example, a biochemist who is told to work overtime for a project is frustrated, because he feels like he is already working too many hours. Instead of discussing this directly with his boss, he calls in sick and leaves his work for his boss to finish.

F - Externalization

Explanation Why

[Externalization \(psychiatry\)](#) is a [neurotic defense mechanism](#) in which the individual attributes his/her internal characteristics to the outside world but does not realize that he/she is actually the one with those characteristics. For example, a biochemist who is collaborating with a statistician claims that they haven't been productive because the statistician is extremely lazy when it is actually the scientist who is lazy.

Question # 32

A 28-year-old man is brought to the physician by his wife because she is worried about his unusual behavior. Two weeks ago, he was promoted and is now convinced that he will soon take over the firm. He has been working overtime at the office and spends most of his nights at parties. Whenever he comes home, he asks his wife to have sex with him and rarely sleeps more than 3 hours. He has a history of a similar episode and several periods of depression over the past 2 years. He currently takes no medications. He appears impatient, repeatedly jumps up from his seat, and says, "I have more important things to do." There is no evidence of suicidal ideation. Urine toxicology screening is negative. Long-term treatment with lithium is started. Which of the following parameters should be regularly assessed in this patient while he is undergoing treatment?

	Answer	Image
A	Serum thyroid-stimulating hormone	
B	Serum aminotransferases	
C	Complete blood count with differential	
D	Serum glucose	
E	Urine culture	

Hint

This patient's heightened self-esteem (convinced he will take over the firm), increased goal-directed activity (working overtime, socializing more than usual, increased libido), decreased need for sleep, and psychomotor agitation (repeatedly jumping up from his seat) are characteristic of a manic episode. His history of depression suggests bipolar I disorder, for which lithium is first-line therapy. Lithium can also be used for a different condition in patients intolerant to thionamides.

Correct Answer

A - Serum thyroid-stimulating hormone

Explanation But

Further side effects of [lithium](#) include [tremor](#), [nephrogenic diabetes insipidus](#), [teratogenicity](#) (in particular [Ebstein anomaly](#)), and [ECG](#) changes (e.g., [T-wave](#) depressions).

Explanation Why

[Lithium](#), a [mood stabilizer](#) commonly used as monotherapy for both acute and long-term treatment of mild to moderate [manic episodes](#) of [bipolar disorder](#), blocks the coupling of [thyroid hormone](#) precursors, the release of T₄ and T₃, and the conversion of T₄ to T₃. As a result, [hypothyroidism](#) is a common side effect of [lithium](#), which is why [thyroid function tests](#) (e.g., [thyroid-stimulating hormone](#) and free T₄) should be performed every 6–12 months during ongoing treatment. [Lithium](#)-induced [hypothyroidism](#), which is often subclinical, should be treated with replacement therapy. There is usually no need to discontinue [lithium](#) therapy.

B - Serum aminotransferases

Explanation Why

Regular measurement of serum [aminotransferases](#) is not necessary with [lithium](#) treatment because this drug is not known to cause [liver](#) damage. [Valproic acid](#), which can also be used as a [mood stabilizer](#) in patients with [bipolar disorder](#), is associated with severe hepatotoxicity. Therefore, serum [liver](#) testing prior to [valproate](#) therapy and at frequent intervals thereafter is recommended.

C - Complete blood count with differential

Explanation Why

Although [leukocytosis](#) is a possible side effect of [lithium](#), this is usually clinically insignificant and

does not warrant the regular measurement of [complete blood count](#) with differential. [Clozapine](#), which is sometimes used for treatment-resistant [bipolar disorder](#), can cause life-threatening [agranulocytosis](#), which is why a [complete blood count](#) should frequently be obtained in patients using this drug.

D - Serum glucose

Explanation Why

Although [lithium](#) has been associated with [hyperglycemia](#), this is an uncommon side effect; therefore, regular measurement of serum glucose is not recommended during ongoing treatment. [Atypical antipsychotics](#) (e.g., [clozapine](#), [olanzapine](#), [quetiapine](#)), which can be used to treat acute [mania](#) or as adjunctive therapy for refractory [bipolar disorder](#), are known to cause [hyperglycemia](#), [dyslipidemia](#), and weight gain. Thus, [fasting serum glucose](#) should be monitored regularly in patients using this group of drugs.

E - Urine culture

Explanation Why

Routine [urine cultures](#) are unnecessary with [lithium](#) treatment because this drug is not associated with [urinary tract infections](#). [Nephrogenic diabetes insipidus](#) is a possible side effect of [lithium](#) as a result of interference with [ADH](#) signaling. However, a [urine culture](#) is irrelevant in diagnosing [nephrogenic diabetes insipidus](#).

Question # 33

A 44-year-old woman comes to the physician because of a 2-month history of increased urination. She has also had dry mouth and excessive thirst despite drinking several gallons of water daily. She has a history of obsessive-compulsive disorder treated with citalopram. She drinks 1–2 cans of beer daily. Physical examination shows no abnormalities. Serum studies show a Na^+ concentration of 130 mEq/L, a fasting glucose concentration of 138 mg/dL, and an osmolality of 265 mOsmol/kg. Urine osmolality is 230 mOsmol/kg. The patient is asked to stop drinking water for 3 hours. Following water restriction, repeated laboratory studies show a serum osmolality of 280 mOsmol/kg and a urine osmolality of 650 mOsmol/kg. Which of the following is the most likely diagnosis?

	Answer	Image
A	Central diabetes insipidus	
B	Primary hyperparathyroidism	
C	Syndrome of inappropriate ADH secretion	
D	Nephrogenic diabetes insipidus	
E	Primary polydipsia	<pre> graph TD A[Suspected Diabetes Insipidus] --> B[Order labs: Plasma: Na+ and osmolality, Urine: osmolality] B --> C[Hypohydratemia Plasma osmolality low-normal Urine osmolality very low < 250 mOsm/kg] B --> D[Mild Hyponatremia Plasma osmolality high-normal Urine osmolality low < 900 mOsm/kg] C --> E[Primary polydipsia likely] D --> F[Diabetes insipidus likely] E --> G[Confirm diagnosis] F --> G G --> H[Water deprivation test] H --> I[Plasma osmolality normal < 275-280 mOsm/kg Urine osmolality normal > 800 mOsm/kg] H --> J[Plasma osmolality high > 280 mOsm/kg Urine osmolality remains low < 900 mOsm/kg] I --> K[Primary polydipsia] J --> L[Desmopressin administration] L --> M[Urine osmolality ↑] L --> N[Urine osmolality stays low] M --> O[Central diabetes insipidus] N --> P[Nephrogenic diabetes insipidus] </pre>
F	Beer potomania	

	Answer	Image
G	Hyperosmolar hyperglycemic state	

Hint

This patient has polyuria, polydipsia, and both low serum and urine osmolality levels that correct with water deprivation. This medical condition is commonly associated with psychiatric diseases such as obsessive-compulsive disorder.

Correct Answer

A - Central diabetes insipidus

Explanation Why

This patient has some typical features of [central diabetes insipidus \(DI\)](#), including [polyuria](#) and [polydipsia](#). However, individuals with [DI](#) typically present with mild [hypernatremia](#), high-normal [serum osmolality](#), and low [urine osmolality](#). In patients with [DI](#), the [water deprivation test](#) typically results in rising [serum osmolality](#) > 290 mOsm/kg and no change in [urine osmolality](#), unlike here.

B - Primary hyperparathyroidism

Explanation Why

[Primary hyperparathyroidism \(pHPT\)](#) is most often asymptomatic but can manifest with [polyuria](#) and [polydipsia](#), which are seen in this patient, as a result of [hypercalcemia](#)-induced [nephrogenic diabetes insipidus](#). However, individuals with [pHPT](#) present with mild [hypernatremia](#), high-normal [serum osmolality](#), and low [urine osmolality](#).

C - Syndrome of inappropriate ADH secretion

Explanation Why

This patient has some typical features of [syndrome of inappropriate ADH secretion \(SIADH\)](#), including [hyponatremia](#) and decreased [serum osmolality](#), and [SIADH](#) can be caused by [SSRIs](#) such as [citalopram](#). In patients with [SIADH](#), increased activity of [antidiuretic hormone \(ADH\)](#) decreases free water clearance, which results in low [serum osmolality](#), but [urine osmolality](#) is usually inappropriately high. Moreover, unlike this patient's findings, [SIADH](#) does not cause [polyuria](#), [polydipsia](#), or [serum osmolality](#) correction after water restriction.

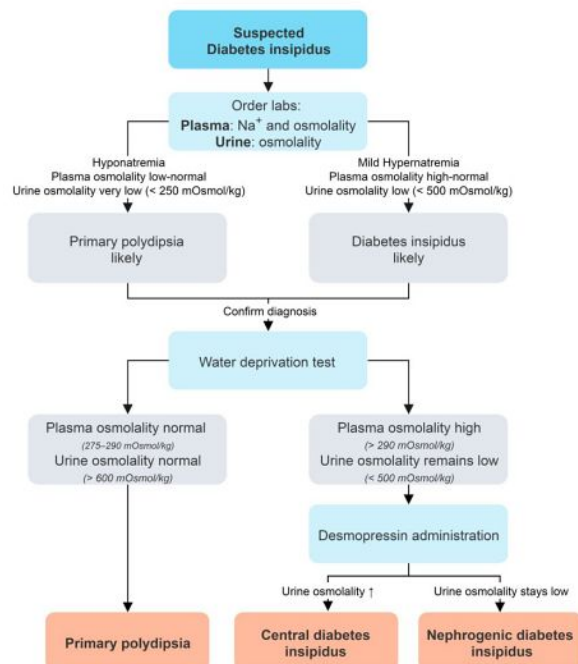
D - Nephrogenic diabetes insipidus

Explanation Why

This patient has some typical features of [nephrogenic diabetes insipidus \(DI\)](#), including [polyuria](#) and [polydipsia](#). However, individuals with [DI](#) typically present with mild [hypernatremia](#), high-normal [serum osmolality](#), and low [urine osmolality](#). In a patient with [DI](#), the [water deprivation test](#) would typically result in rising [serum osmolality](#) > 290 mOsmol/kg and no change in [urine osmolality](#), unlike here.

E - Primary polydipsia

Image



Explanation But

In patients with [primary polydipsia](#), excessive free water intake lowers [serum osmolality](#) and causes a compensatory reduction in the secretion of [ADH](#), which will dilute [urine](#) to a maximum (reducing

[urine osmolality](#)) to excrete excess fluid.

Explanation Why

This patient presents with a history of excessive thirst, [polydipsia](#), [polyuria](#), [hyponatremia](#), and dilute [urine](#), findings that are all consistent with [primary polydipsia](#) ([psychogenic polydipsia](#)). The [water deprivation test](#) allows [primary polydipsia](#) to be differentiated from [diabetes insipidus](#). Normal serum and [urine osmolality](#) values after the [water deprivation test](#) indicate that both the release and effect of [ADH](#) are intact, ruling out [diabetes insipidus](#) and confirming the diagnosis of [primary polydipsia](#).

F - Beer potomania

Explanation Why

Although [hyponatremia](#) is a typical finding in patients with [beer potomania](#), this patient only drinks 1–2 cans of beer per day, which is not enough to cause this condition.

G - Hyperosmolar hyperglycemic state

Explanation Why

[Hyperosmolar hyperglycemic state](#) (HHS) manifests with [polyuria](#) and [polydipsia](#), which are seen in this patient. However, patients with HHS usually present with profound [dehydration](#) and significant [hyperglycemia](#) (serum glucose > 600 mg/dL, which are unlikely in a patient with a normal [physical examination](#) and vitals. Moreover, HHS would result in high rather than low [serum osmolality](#).

Question # 34

A 29-year-old man with post-traumatic stress disorder is admitted to the hospital following an intentional opioid overdose. He is a soldier who returned from a deployment in Afghanistan 3 months ago. He is divorced and lives alone. His mother died by suicide when he was 8 years of age. He states that he intended to end his life as painlessly as possible and has also contemplated using his service firearm to end his life. He asks the physician if assisted suicide is legal in his state. He does not smoke or drink alcohol but uses medical marijuana daily. Mental status examination shows a depressed mood and constricted affect. Which of the following is the strongest risk factor for suicide in this patient?

	Answer	Image
A	Male sex	
B	Post-traumatic stress disorder	
C	Family history of completed suicide	
D	Attempted drug overdose	
E	Use of medical marijuana	
F	Lack of social support	
G	Young age	
H	History of military service	

Hint

Though all of the following increase the risk for suicide, one factor has been identified in several studies to be associated with a significantly higher risk compared to the others (up to 370-fold increased risk compared to the general population).

Correct Answer

A - Male sex

Explanation Why

Though the rate of completed [suicide](#) is significantly higher among men compared to women, male sex is not the strongest [risk factor](#) for [suicide](#). The difference in the rate of completed [suicide](#) appears to be related to the lethality of the method chosen (e.g., [suicide](#) by firearm compared to [attempted suicide](#) by overdose). The rate of [suicide attempts](#) is higher among women compared to men.

B - Post-traumatic stress disorder

Explanation Why

[Post-traumatic stress disorder](#), like other mental health disorders, is a significant [risk factor](#) for [suicide](#); however, it is not the strongest [risk factor](#).

C - Family history of completed suicide

Explanation Why

[Family history](#) of completed [suicide](#) is a significant [risk factor](#) for [suicide](#); however, it is not the strongest [risk factor](#).

D - Attempted drug overdose

Explanation Why

Previously [attempted suicide](#) is the single strongest [risk factor](#) for [suicide](#). A popular mnemonic for common [risk factors](#) for [suicide](#) is SADPERSONS: Sex (male), Age (> 45 years), Depression, Previous [suicide attempt](#), Ethanol/[substance use disorder](#), Rational thinking loss, Sickness (chronic disease), Organized plan (e.g., access to weapons), No spouse, Social support lacking.

E - Use of medical marijuana

Explanation Why

Use of medical [marijuana](#) is not an established [risk factor](#) for [suicide](#).

F - Lack of social support

Explanation Why

Lack of social support is a significant [risk factor](#) for [suicide](#); however, it is not the strongest [risk factor](#). The risk of [suicide](#) varies with marital status (e.g., single, separated, divorced, widowed) and other social factors, such as living alone, social [isolation](#), and subjective feelings of loneliness.

G - Young age

Explanation Why

[Suicide](#) is one of the most common causes of death among individuals between 15–34 years of age. However, young age is not the strongest [risk factor](#) for [suicide](#).

H - History of military service

Explanation Why

The rate of [suicide](#) among military veterans is higher than that of the general population, though age- and [gender](#)-adjusted rates are comparable. The [incidence](#) of [suicide](#) among military veterans is increasing (particularly among younger men), but a history of military service is not the strongest [risk factor](#) for [suicide](#).

Question # 35

A 19-year-old woman is brought to the emergency department by ambulance 30 minutes after her neighbor found her unconscious on a running trail. Her neighbor reports that she has been training for a marathon since the beginning of the summer. She is alert and oriented but becomes irritable when realizing that she is at a hospital and refuses to answer questions. She appears tired. She is 170 cm (5 ft 7 in) tall and weighs 51 kg (112 lb). Her temperature is 35.5°C (96°F), pulse is 44/min, respirations are 20/min, and blood pressure is 84/48 mm Hg. Examination shows dry, scaly skin and dry mucous membranes. Cardiopulmonary examination shows a high-frequency, mid-to-late systolic murmur that is heard best at the apex. Her hemoglobin concentration is 11.9 g/dL. Which of the following is the most likely diagnosis?

	Answer	Image
A	Hypertrophic obstructive cardiomyopathy	
B	Hypothyroidism	
C	Heat exhaustion	
D	Amphetamine use	
E	Anorexia nervosa	
F	Occult malignancy	

Hint

This patient has a BMI of 17.5 kg/m^2 . A high-frequency, mid-to-late systolic murmur at the mitral area (apex) suggests mitral valve prolapse.

Correct Answer

A - Hypertrophic obstructive cardiomyopathy

Explanation Why

[Hypertrophic obstructive cardiomyopathy](#) (HOCM) can manifest with [syncope](#), particularly during or after intense physical activity, and a [systolic murmur](#). The [left ventricular](#) obstruction in [HOCM](#), however, typically results in a harsh crescendo-decrescendo [systolic murmur](#) rather than a mid-to-late [systolic murmur](#), which is heard in this patient. Moreover, the combination of [hypothermia](#), [bradycardia](#), low body weight, and dry, scaly [skin](#) suggests a different diagnosis.

B - Hypothyroidism

Explanation Why

[Hypothyroidism](#) can manifest with [bradycardia](#), [hypothermia](#), dry, scaly [skin](#), and [anemia](#), all of which are seen here. Furthermore, autoimmune [thyroid](#) disease (e.g., [Hashimoto disease](#)) is associated with an increased risk of [mitral valve prolapse](#) (MVP), which is likely present here. MVP may, in turn, predispose individuals to [arrhythmias](#) and [syncope](#). However, [hypothyroidism](#) typically manifests with weight gain despite poor appetite. This patient's low body weight is more consistent with a different diagnosis.

C - Heat exhaustion

Explanation Why

Strenuous physical activity in a hot, humid environment (e.g., during summer) is a [risk factor](#) for heat exhaustion and [dehydration](#), both of which can cause [syncope](#), as seen here. While this patient has features of [dehydration](#) (e.g., dry mucous membranes, [hypotension](#)), which is an independent [risk factor](#) for heat exhaustion, her low core body temperature rules out heat exhaustion. Moreover, patients with heat exhaustion or [dehydration](#) are typically [tachycardic](#). The presence of [bradycardia](#) in a hypotensive patient alongside low body weight and an apical [systolic murmur](#) indicates a different diagnosis.

D - Amphetamine use

Explanation Why

Performance athletes (e.g., marathon runners) have been known to misuse stimulants such as [amphetamines](#). An acute [amphetamine](#) overdose can cause loss of consciousness due to [seizures](#) or [arrhythmias](#). Chronic [amphetamine](#) use can result in low body weight (due to appetite suppression), irritability, and features of [dilated cardiomyopathy](#), such as an apical, [systolic murmur](#) due to [functional mitral regurgitation](#) (MR). The [murmur](#) associated with MR, however, is typically [holosystolic](#). Moreover, an acute [amphetamine](#) overdose usually manifests with [tachycardia](#), [hypertension](#), and hyperthermia rather than [bradycardia](#), [hypotension](#), and [hypothermia](#), which are seen here. While [tachycardia](#), [hypertension](#), and hyperthermia may be absent in the case of chronic use as a result of [drug tolerance](#), chronic [amphetamine](#) use would not explain this patient's dry, scaly [skin](#) or [anemia](#).

E - Anorexia nervosa

Explanation Why

[Anorexia nervosa](#) is an [eating disorder](#) in which (typically young and female) individuals severely restrict caloric intake because of a distorted body image and an intense fear of weight gain. Excessive exercise is commonly seen in this disorder. In addition to low body weight ($\text{BMI} < 18.5 \text{ kg/m}^2$), severe caloric restriction leads to a variety of clinical features (e.g., [hypothermia](#), [secondary amenorrhea](#), [osteoporosis](#), dry [skin](#), [pancytopenia](#), electrolyte abnormalities), some of which are seen here. Cardiovascular manifestations include sinus [bradycardia](#), [mitral valve prolapse](#), and [hypotension](#), all of which can lead to [syncope](#). Treatment includes nutritional rehabilitation, [psychotherapy](#), and, in the case of underlying depression or anxiety, [SSRIs](#).

F - Occult malignancy

Explanation But

Damage to the [hypothalamus](#) by a [tumor](#) can also cause [hypothermia](#), which can result in

[bradycardia](#). Severe [marantic endocarditis](#), which can be caused by [adenocarcinomas](#), can also cause an apical [murmur](#) if the [mitral valve](#) is affected. However, both these scenarios are extremely rare; a different diagnosis is much more likely in this patient.

Explanation Why

An occult [malignancy](#) often manifests with [anemia](#) and weight loss leading to a low body weight ([cancer cachexia](#)), both of which are seen here. [Bradycardia](#), which can lead to [lightheadedness](#) and [syncope](#), may be a sign of [increased intracranial pressure](#) due to an [intracranial tumor](#) (e.g., [brain metastases](#)). However, this patient does not have other features that suggest [increased intracranial pressure](#), such as altered mental status, [headache](#), and/or blurry vision. The presence of [hypothermia](#), dry, scaly [skin](#), and an apical [systolic murmur](#) suggest a different diagnosis.

Question # 36

A 38-year-old woman comes to the physician for the first time because of a 2-year history of lower back pain and fatigue. She also says that she occasionally feels out of breath. Her symptoms are not associated with physical activity. She has seen multiple physicians over the past year. Extensive workup including blood and urine tests, abdominal ultrasound, MRI of the back, and cardiac stress testing have shown no abnormalities. The patient asks for a medication to alleviate her symptoms. Which of the following is the most appropriate response by the physician?

	Answer	Image
A	"I would like to investigate your shortness of breath by performing coronary artery catheterization."	
B	"Your symptoms are suggestive of a condition called somatic symptom disorder."	
C	"We should start you on a pain management regiment with tramadol to address your chronic back pain."	
D	"I would like to assess your symptoms causing you the most distress and schedule monthly follow-up appointments."	
E	"I would like to refer you to a psychiatric specialist to start behavioral psychotherapy."	
F	"Your desire for pain medication is suggestive of a medication dependence disorder."	

Hint

Chronic symptoms that do not fit a specific diagnosis, visits to multiple physicians, and negative findings after an extensive workup are suggestive of a somatic symptom disorder.

Correct Answer

A -

"I would like to investigate your shortness of breath by performing coronary artery catheterization."

Explanation Why

A [cardiac catheterization](#) is an invasive procedure that carries risk for complications. This patient has had a prior [cardiac stress test](#) with no abnormalities, making her [pretest probability](#) for [coronary artery disease](#) low. [Cardiac catheterization](#) would not be indicated here.

B -

"Your symptoms are suggestive of a condition called somatic symptom disorder."

Explanation Why

Discussing a psychiatric diagnosis with the patient is important as she has a right to be fully informed of her condition. However, the diagnosis of [somatic symptom disorder](#) should be delivered in the context of a strong physician-patient relationship. This patient presents to establish care after previously seeing several physicians. It would be most prudent to build rapport prior to delivering the diagnosis.

C -

"We should start you on a pain management regiment with tramadol to address your chronic back pain."

Explanation Why

[Tramadol](#) is a narcotic [pain](#) medication that carries a significant risk of dependency when prescribed for the treatment of chronic [pain](#). This patient has undergone extensive work-up revealing no underlying organic origin for her [pain](#). Narcotic [pain](#) medication is unlikely to resolve her symptoms.

D -

"I would like to assess your symptoms causing you the most distress and schedule monthly follow-up appointments."

Explanation Why

Regularly scheduled office visits with the same physician are recognized as the most effective treatment for [somatic symptom disorder](#). [Psychotherapy](#) (e.g., [cognitive behavioral therapy](#)) is an additional component of first-line treatment. This patient has already had a comprehensive medical workup, suggesting that an organic cause of her symptoms is very unlikely and that further diagnostic steps would not be appropriate.

E -

"I would like to refer you to a psychiatric specialist to start behavioral psychotherapy."

Explanation Why

Referral to a [psychiatrist](#) is often indicated in cases of [somatic symptom disorder](#). However, this should be recommended in the context of an established and strong physician-patient relationship. This patient presents to establish care after previously seeing several physicians. It would be most prudent to build rapport prior to discussing referral to a [psychiatrist](#).

F -

"Your desire for pain medication is suggestive of a medication dependence disorder."

Explanation Why

Criticizing the patient's request for medications can be perceived as accusatory and counterproductive to the physician-patient relationship. Patients suffering from [somatic symptom disorder](#), as this patient's presentation suggests, experience real symptoms that may prompt them to

seek treatment. Empathetic listening and legitimization of the patient's concern is important, as is providing education regarding the reasons for not prescribing medications.

Question # 37

A previously healthy 27-year-old woman comes to the physician because of a 2-month history of depressed mood and fatigue. During this time, she has had a 5-kg (11-lb) weight gain. She reports trouble concentrating at her job as a preschool teacher and has missed work several times in recent weeks due to generalized fatigue. She has smoked 2 packs of cigarettes daily for 10 years and is actively trying to quit smoking. A drug is prescribed that will treat the patient's mood disturbance and support smoking cessation. This patient should be counseled about which of the following possible side effects of this drug?

	Answer	Image
A	Decreased libido	
B	Hypotension	
C	Urinary retention	
D	Tachycardia	
E	QTc prolongation	
F	Weight gain	

Hint

Depressed mood, anhedonia, fatigue, and weight changes are consistent with major depressive disorder. Bupropion is an atypical antidepressant used to treat major depressive disorder and can help relieve cravings and withdrawal symptoms in individuals who are trying to quit smoking.

Correct Answer

A - Decreased libido

Explanation Why

Decreased libido is a common side effect of treatment with [selective serotonin reuptake inhibitors \(SSRIs\)](#) and one of the most common reasons for discontinuation of [SSRIs](#). [Bupropion](#) is commonly prescribed to patients experiencing decreased libido due to [SSRI](#) therapy, as it does not cause this side effect.

B - Hypotension

Explanation Why

[Tricyclic antidepressants](#) can cause [postural hypotension](#) due to the off-target blockade of [muscarinic receptors](#) and [alpha receptors](#). However, [hypotension](#) is not a side effect of [bupropion](#).

C - Urinary retention

Explanation Why

[Urinary retention](#) is an [anticholinergic side effect](#) of [tricyclic antidepressants](#) such as [amitriptyline](#). [Bupropion](#) does not have [anticholinergic side effects](#) and is not known to affect the [urinary system](#).

D - Tachycardia

Explanation Why

Because [bupropion](#) inhibits neuronal [dopamine](#) and [norepinephrine](#) reuptake, [tachycardia](#) can occur after starting the drug. Reuptake inhibition not only increases the levels of these substances in the [synapse](#) (which is responsible for the drug's effect on [mood](#) and ability to alleviate [nicotine](#) cravings) but also in the peripheral circulation. This risk of [tachycardia](#) is dose-related and higher doses of the drug can even predispose patients to [cardiac arrhythmias](#). Other side effects of [bupropion](#) include weight loss, [insomnia](#), and a reduction in [seizure](#) threshold.

E - QTc prolongation

Explanation Why

[QTc prolongation](#) is a side effect of [tricyclic antidepressants](#) (e.g., [amitriptyline](#)). [Bupropion](#) is an [atypical antidepressant](#) that is not associated with [QTc prolongation](#).

F - Weight gain

Explanation Why

Weight gain is not associated with [bupropion](#) use. Instead, weight loss is commonly observed after starting the drug and may even be a secondary benefit in patients with [major depressive disorder](#) and [obesity](#). Other [atypical antidepressants](#), especially [mirtazapine](#), are much more commonly implicated in weight gain.

Question # 38

A 38-year-old woman comes to the physician for a 6-week history of sleeping difficulties because she thinks that someone is watching her through security cameras. Her anxiety started 6 weeks ago when a security camera was installed outside her house by the police. Ever since, she has felt that she is being monitored by security cameras throughout the city. She avoids going outside whenever possible and refuses to take the subway. Whenever she needs to leave the house she wears large hats or hooded sweaters so that she cannot be recognized by the cameras. As soon as she arrives at her office or at home she feels safer. She was recently promoted to the team manager of a small advertising agency. She takes no medications. On mental status examination, she is alert, oriented, and shows normal range of affect. Urine toxicology screening is negative. The patient's symptoms are best described as which of the following?

	Answer	Image
A	Delirium	
B	Agoraphobia	
C	Delusions	
D	Derealization	
E	Disorganized thoughts	
F	Avolition	
G	Hallucinations	

Hint

This patient has a disturbance of thought content.

Correct Answer

A - Delirium

Explanation Why

[Delirium](#) can result in sleep disturbances, as seen in this patient. However, [delirium](#) manifests with a fluctuating state of confusion, altered consciousness, cognitive dysfunction, and [perceptual disturbances](#), not the persistent disturbance of [thought content](#) seen here. Moreover, this patient does not have any [risk factors](#) for [delirium](#) (e.g., old age, hospitalization, infections, medications).

B - Agoraphobia

Explanation Why

[Agoraphobia](#) is an [anxiety disorder](#) in which the individual fears being in situations that are perceived as difficult to escape from or in which it might be difficult to seek help. An individual with [agoraphobia](#) may prefer to remain homebound, as seen here. However, this patient's aversion to going outside is due to the belief that she is being observed rather than the avoidance of specific situations.

C - Delusions

Explanation Why

A [delusion](#) is a disturbance of [thought content](#) that is characterized by a fixed, false belief that is not derived from the individual's cultural or religious beliefs and cannot be changed by reasoning. This patient has a 6-week history of [persecutory delusions](#) and [delusions of reference](#) but functions normally at work and has no other [psychotic symptoms](#). This is characteristic of [delusional disorder](#). [Delusions](#) can also occur in patients with [psychotic disorders](#) (e.g., [schizophrenia](#), [mood disorder with psychotic features](#)), and [substance use disorders](#). Other types of [delusions](#) include [delusions of grandeur](#), delusions of control, [delusions of guilt](#), erotomaniac [delusions](#), and [somatic delusions](#).

D - Derealization

Explanation Why

[Derealization](#) is a [perceptual disturbance](#) in which the individual feels detached from their surroundings and experiences the world as if it were a dream or movie. It occurs with [panic attacks](#) and [dissociative disorders](#) (e.g., [depersonalization disorder](#), [dissociative identity disorder](#)). This patient has a disturbance of [thought content](#), not a [perceptual disturbance](#).

E - Disorganized thoughts

Explanation Why

Disorganized thoughts (formal thought disorders) are characterized by a lack of logical connection between thoughts or a disturbance in the flow of ideas (e.g., [tangentiality](#), [flight of ideas](#)). This patient has a disturbance in [thought content](#) rather than [thought process](#).

F - Avolition

Explanation Why

[Avolition](#) is characterized by decreased motivation to engage in purposeful activities. An individual with [avolition](#) may prefer to remain homebound, as seen here. However, this patient's aversion to going outside is due to the belief that she is being observed rather than a lack of motivation.

G - Hallucinations

Explanation Why

A [hallucination](#) is a [perceptual disturbance](#) in which an individual perceives sensory stimuli despite the absence of an actual stimulus. For example, an individual experiencing a [visual hallucination](#) could start seeing objects that do not exist. This patient, who believes that the security cameras are being used to follow her, is not imagining the existence of the cameras but rather the purpose for which they are being used. This indicates a disturbance of [thought content](#) rather than perception.

Question # 39

A 13-year-old boy is brought to the physician by his mother because she is concerned about her son's behavior. She reports that he has been wearing her dresses at home and asks to be called Lilly. He also stopped going to swim class because he “doesn't feel comfortable in swim trunks.” Since starting puberty about a year ago, he has not had any friends and the teachers report he is consistently being bullied at school. His academic performance has been poor for the last year even though he had maintained an A average the year before. The mother further reports that her son has had mainly female friends since preschool. She also mentions that as a child her son never enjoyed playing with “typical boy toys like cars” and instead preferred dressing up dolls. The patient was raised by his single mother from the age of 8 because his father left the family due to financial issues. He appears shy. Physical examination shows normal male external genitalia. There is scarce coarse, dark axillary and pubic hair. Upon questioning, the patient reports that he would rather be a girl. Which of the following is the most likely diagnosis?

	Answer	Image
A	Gender nonconformity	
B	Sexual aversion	
C	Body dysmorphic disorder	
D	Transvestic disorder	
E	Gender dysphoria	
F	Fetishistic disorder	

Hint

This genetically male patient identifies as female (wears dresses, asks to be called by a female name, self-reports the desire to be a girl). This mismatch has interfered with school and social function, evidenced by deteriorating academic performance, withdrawal from hobbies, social isolation, and conflicts with peers.

Correct Answer

A - Gender nonconformity

Explanation Why

Gender nonconformity describes a behavior or [gender](#) expression that does not match the norms of an individual's assigned [gender](#) but is not associated with distress or social/functional impairment. This genetically male [adolescent](#) has shown signs of gender nonconformity from a young age (rejection of typically masculine toys, preference for dressing up dolls, preference for female playmates) and displays a strong association with the female [gender](#) (wears dresses, asks to be called by a female name). However, the [gender](#) incongruence in this [adolescent](#) has caused significant distress and interfered with school and social function, which is not consistent with the diagnosis of gender nonconformity.

B - Sexual aversion

Explanation Why

Sexual aversion is defined as a [sexual dysfunction](#) disorder characterized by an extreme unwillingness and avoidance of sexual contact, which leads to significant distress and/or interpersonal conflicts. This [adolescent](#) presents with distress and functional impairment caused by a mismatch between genetic sex (male) and [gender](#) identification (female). However, the [adolescent](#) does not report any sexual partners, and there is no evidence of a [sexual dysfunction](#) disorder.

C - Body dysmorphic disorder

Explanation Why

The DSM-5 defines [body dysmorphic disorder](#) (BDD) as a psychiatric disorder characterized by persistent preoccupation with a perceived flaw in one's physical appearance that is mild or not observable by others. This leads to significant distress and/or impairment in functioning. However, incongruence between a person's experienced/expressed [gender](#) and their biological sex, as seen here, is not considered BDD.

D - Transvestic disorder

Explanation Why

The DSM-5 defines [transvestic disorder](#) as a [paraphilic disorder](#) characterized by the persistent and intense sexual [arousal](#) caused by wearing clothes associated with the opposite [gender](#) (i.e., cross-dressing). Unlike [transvestism](#), [transvestic disorder](#) is associated with significant distress and functional impairment. However, as opposed to this [adolescent](#), individuals with [transvestic disorder](#) do not identify as or wish to be the opposite [gender](#). When not cross-dressing, they will dress and act in a manner congruent to their assigned [gender](#). Moreover, this patient's desire to wear dresses is a result of [gender](#) incongruence rather than a desire for sexual [arousal](#).

E - Gender dysphoria

Explanation Why

The DSM-5 defines [gender dysphoria](#) as significant longstanding distress (≥ 6 months) caused by the incongruence between a person's experienced/expressed [gender](#) and assigned [gender](#) (i.e., [transgender](#) identity). This [adolescent](#) who identifies as female has shown signs of gender nonconformity from a young age, including rejection of typically masculine toys, preference for activities commonly associated with girls (i.e., dressing up dolls), and a preference for female friends. Most [gender](#)-nonconforming children do not experience [gender dysphoria](#). However, the [physical changes during puberty](#) often trigger feelings of distress and discomfort that may lead to impairment of important areas of function, as seen here.

F - Fetishistic disorder

Explanation Why

The DSM-5 defines [fetishistic disorder](#) as a [paraphilic disorder](#) characterized by the persistent and intense sexual [arousal](#) related to, and a fixation on, nonliving objects (e.g., shoes) or nongenital parts of the body (e.g., feet, [hair](#)), leading to significant distress or functional impairment. This [adolescent](#) presents with distress and functional impairment caused by a mismatch between genetic sex (male)

and [gender](#) identification (female). There is no evidence of a [fetishistic disorder](#).

Question # 40

An 84-year-old woman is brought to the physician by her daughter because of hair loss over the past 2 months. The patient has a history of hypertension, major depressive disorder, allergic rhinitis, osteoarthritis, and diverticular disease. She lived with her daughter, son-in-law, and their 3 children until recently, when her daughter got divorced and had to move into an apartment. The patient was moved to an assisted living facility nearby, and her daughter has not been able to visit as often as planned. Her medications include diltiazem, venlafaxine, loratadine, acetaminophen, and fiber supplements. She appears withdrawn. Her vital signs are within normal limits. Physical examination of the head is shown. There is no scarring of the skin. The remainder of the examination shows no abnormalities. Which of the following is the most likely cause of this patient's hair loss?



	Answer	Image
A	Modified regulation of the growth cycle of hair follicles	
B	Compulsive hair pulling	

	Answer	Image
C	Medication side effect	
D	Immune-mediated inflammation of hair follicles	
E	Dermatophyte infection of the scalp	
F	Increased androgen sensitivity of hair follicles	

Hint

This patient experienced significant stressors when she was moved away from her family to an assisted living facility after her daughter's divorce.

Correct Answer

A - Modified regulation of the growth cycle of hair follicles

Explanation Why

[Telogen effluvium](#) is caused by a modification in the regulation of the growth cycle of the [hair follicle](#), leading to diffuse, nonscarring [hair](#) loss. Although psychological stress can trigger [telogen effluvium](#), this condition does not manifest with patches of [hair](#) of varying lengths. Additionally, [hair](#) density in [telogen effluvium](#) typically decreases by $< 50\%$; this patient has normal [hair](#) density.

B - Compulsive hair pulling

Explanation Why

This patient's patches of [hair](#) of varying lengths that occurred following stressful events suggest [trichotillomania](#). Patients with [trichotillomania](#) often have an underlying psychiatric disorder, such as [major depressive disorder](#). [Trichotillomania](#) is more common in women than men and manifests most commonly in teenagers, although it can present at any age, particularly in the setting of multiple stressors. [Hair](#)-pulling can occur at the scalp, as seen in this patient, as well as eyebrows and eyelashes. Treatment includes [cognitive behavioral therapy](#) and [SSRIs](#).

C - Medication side effect

Explanation Why

[Hair](#) loss can occur as a side effect of medication (e.g., [isotretinoin](#), [lithium](#), [colchicine](#)). However, none of the medications that this patient is taking are commonly associated with [hair](#) loss. Moreover, this patient has new [hair](#) growth and normal [hair](#) density, neither of which is consistent with medication-induced [hair](#) loss.

D - Immune-mediated inflammation of hair follicles

Explanation Why

Immune-mediated [inflammation](#) of [hair follicles](#) is the underlying cause of [alopecia areata](#), which can cause stress-related [hair](#) loss without scarring. Although [alopecia areata](#) most commonly affects the scalp, irregular patches of [hair](#) of varying lengths would not be expected. Instead, affected individuals typically present with well-demarcated, smooth, rounded patches of [hair](#) loss and exclamation-point [hairs](#) as well as [nail](#) involvement. Moreover, [alopecia areata](#) is mainly seen in people < 30 years old; this patient is 84 years old.

E - Dermatophyte infection of the scalp

Explanation Why

[Dermatophyte infections](#) of the scalp (e.g., [tinea capitis](#)) can cause [hair](#) loss. [Tinea capitis](#) typically does not manifest with [hair](#) of varying lengths, nor is it associated with stress. In addition, typical clinical features of [tinea capitis](#), including round, [pruritic](#) scaly plaques with broken [hair shafts](#) and postauricular [lymphadenopathy](#), are not present in this patient. Moreover, [tinea capitis](#) is seen primarily in children; this patient is 84 years old.

F - Increased androgen sensitivity of hair follicles

Explanation Why

Increased [androgen](#) sensitivity of [hair follicles](#) causes [androgenetic alopecia](#), which can manifest as nonscarring balding of the crown and frontal scalp in women. However, [androgenic alopecia](#) does not typically manifest with patches of [hair](#) of different lengths, as seen in this patient, nor is it associated with stress. Rather, the [hair](#) loss in [androgenetic alopecia](#) is progressive; diffuse [hair](#) thinning of the entire scalp would be expected. Additionally, this patient does not have [hirsutism](#) or [acne](#), which are characteristic signs of [androgen excess](#).

Question # 1

A 19-year-old woman comes to the physician because of a 2-day history of difficulty sleeping. She worries that the lack of sleep will ruin her career prospects as a model. She has been coming to the physician multiple times over the past year for minor problems. She is dressed very extravagantly and flirts with the receptionist. When she is asked to sit down in the waiting room, she begins to cry and says that no one listens to her. When she is called to the examination room, she moves close to the physician, repeatedly intends to touch his cheek, and makes inappropriate comments. She does not have a history of self-harm or suicidal ideation. Which of the following is the most likely diagnosis?

	Answer	Image
A	Dependent personality disorder	
B	Histrionic personality disorder	
C	Narcissistic personality disorder	
D	Schizotypal personality disorder	
E	Borderline personality disorder	

Hint

The patient has a personality disorder that has features that include inappropriately seductive behavior (e.g., flirting with the receptionist, inappropriate contact with the physician), emotional instability (e.g., shifting from flirting to crying and back to flirting), using her physical appearance to draw attention to herself (e.g., dressing extravagantly), and becoming uncomfortable when she is not the center of attention (e.g., coming to the doctor for multiple minor problems, claiming that no one listens to her).

Correct Answer

A - Dependent personality disorder

Explanation Why

Patients with a [dependent personality disorder](#) may visit the physician frequently because they seek support and reassurance. However, they typically behave timidly and politely rather than flirtatiously and flamboyantly. In addition, patients with [dependent personality disorder](#) tend to have difficulty making everyday decisions and often require others to take over responsibilities for them, none of which is seen here.

B - Histrionic personality disorder

Explanation Why

[Histrionic personality disorder](#) is characterized by excessive emotionality and attention-seeking behavior. According to DSM-5, a diagnosis of [histrionic personality disorder](#) can be made in patients with ≥ 5 of the following 8 criteria: inappropriate seductive behavior, the use of physical appearance to draw attention to oneself, discomfort when the individual is not the center of attention, emotional lability, theatricality, considering relationships to be more intimate than they actually are, impressionistic speech, and suggestibility (i.e., being easily influenced by others). This patient meets the first 6 criteria.

C - Narcissistic personality disorder

Explanation Why

Individuals with [narcissistic personality disorder](#) may exhibit attention-seeking behavior and exaggerate the intimacy of their relationships with others. However, this attention-seeking behavior stems from a desire for praise and admiration rather than from a need for reassurance or approval. Patients with [narcissistic personality disorder](#) are more likely to react to criticism or rejection with rage rather than the emotional vulnerability seen here (e.g., crying). In addition, they exhibit other traits not seen in this patient, such as an excessive sense of self-importance, exaggeration of

achievements, [grandiosity](#), arrogance, a lack of empathy, and envy.

D - Schizotypal personality disorder

Explanation Why

Individuals with [schizotypal personality disorder](#) may dress and behave eccentrically. However, they do not typically use physical appearance for the purpose of garnering attention. In addition, individuals with [schizotypal personality disorder](#) often display an impaired capacity and discomfort with close personal contact, rather than the excessive intimacy and flirtatiousness seen here. Moreover, they typically have superstitious beliefs and/or [magical thinking](#).

E - Borderline personality disorder

Explanation Why

Patients with [borderline personality disorder](#) may exhibit attention-seeking or manipulative behavior, rapidly shifting emotions, intense interpersonal relationships that alternate between extreme idealization and extreme devaluation, and a fear of abandonment. However, essential components of [borderline personality disorder](#) are a negative self-image and self-destructive behavior (e.g., self-harm, [suicide attempts](#)), which this patient does not have.

Question # 2

A 45-year-old man is brought to the physician by his wife for the evaluation of abnormal sleep patterns that began 10 days ago. She reports that he has only been sleeping 2–3 hours nightly during this time and has been jogging for long periods of the night on the treadmill. The patient has also been excessively talkative and has missed work on several occasions to write emails to his friends and relatives to convince them to invest in a new business idea that he has had. He has chronic kidney disease requiring hemodialysis, but he has refused to take his medications because he believes that he is cured. Eight months ago, he had a 3-week long period of persistent sadness and was diagnosed with major depressive disorder. Mental status examination shows psychomotor agitation and pressured speech. Treatment of this patient's condition should include which of the following drugs?

	Answer	Image
A	Bupropion	
B	Triazolam	
C	Clozapine	
D	Valproate	
E	Lithium	
F	Mirtazapine	
G	Fluoxetine	

Hint

This patient's history and symptoms are consistent with bipolar I disorder with an acute manic episode.

Correct Answer

A - Bupropion

Explanation Why

[Bupropion](#) is an [atypical antidepressant](#) that is thought to act by increasing [dopamine](#) and [norepinephrine](#) levels via reuptake inhibition. It is indicated in the treatment of major depression, as adjunctive therapy in smoking cessation, and for [seasonal affective disorder](#). However, [bupropion](#) should be avoided in patients with [bipolar disorder](#) because of its ability to precipitate or exacerbate a [manic episode](#).

B - Triazolam

Explanation Why

[Triazolam](#) is a [benzodiazepine](#) with a short duration of action. [Benzodiazepines](#) can be used as an adjunct in the treatment of acute [manic episodes](#). However, [benzodiazepines](#) are primarily indicated for individuals with [hypomania](#) or mild to moderate [manic episodes](#) who cannot tolerate the first-line therapeutic combination. Moreover, the [benzodiazepines](#) found to be safe for such use are [clonazepam](#) and [lorazepam](#) rather than [triazolam](#).

C - Clozapine

Explanation Why

[Clozapine](#) is an [atypical antipsychotic](#) that can be considered in patients with refractory [mania](#) who decline [electroconvulsive therapy \(ECT\)](#). However, because of its side effects, [clozapine](#) is not indicated as first-line therapy for [bipolar disorder](#) with an ongoing [manic episode](#). Potentially serious adverse effects include [agranulocytosis](#) and other hematologic abnormalities, and [metabolic syndrome](#). Other [atypical antipsychotics](#) (e.g., [quetiapine](#), [aripiprazole](#), [olanzapine](#), [risperidone](#)) are indicated as an adjunct in the initial treatment for [mania/hypomania](#).

D - Valproate

Explanation But

The goal of acute treatment for a bipolar [manic episode](#) is the resolution of [mania](#) and [psychosis](#). After stabilization, maintenance therapy is recommended to prevent future [manic episodes](#).

Explanation Why

In individuals with [bipolar disorder](#) experiencing a severe [manic episode](#), the recommended first-line therapy consists of a [mood stabilizer](#) combined with an [antipsychotic](#). The [mood stabilizers](#) of choice are [lithium](#) and sodium [valproate](#). In individuals with renal dysfunction, the use of [lithium](#) is contraindicated because the drug is eliminated by the [kidneys](#), making sodium [valproate](#) the [mood stabilizer](#) of choice for this patient with [chronic kidney disease](#).

E - Lithium

Explanation Why

[Lithium](#) is a first-line drug used in combination with an [antipsychotic](#) for treating [manic episodes](#) in individuals with [bipolar disorder](#). [Lithium](#) is eliminated by the [kidneys](#) and has a [narrow therapeutic index](#). An overdose may result in life-threatening [lithium toxicity](#). Therefore, it is contraindicated in individuals with renal dysfunction, which is seen here.

F - Mirtazapine

Explanation Why

[Mirtazapine](#) is an [atypical antidepressant](#) that acts by promoting [serotonin](#) and [norepinephrine](#) release. It is indicated in the treatment of major depression, [generalized anxiety disorder](#), and [tension-type headaches](#). However, [atypical antidepressants](#) are not indicated in treating individuals with [bipolar disorder](#) and an ongoing [manic episode](#).

G - Fluoxetine

Explanation Why

Fluoxetine is a [selective serotonin reuptake inhibitor](#) that can be used in individuals with [bipolar disorder](#) who develop breakthrough depression while on maintenance therapy. However, because of their potential to induce [mania](#) or [rapid cycling](#), [antidepressants](#) are best avoided in any individual with [bipolar disorder](#) who is not currently expressing depressive symptoms.

Question # 3

A 23-year-old woman is brought to the emergency department by her boyfriend because of a 4-month history of feeling sad. Her boyfriend says that, during this period, she has slept and eaten very little and has been unable to focus at work. She says that she feels “empty inside” and has been hearing voices telling her that she is worthless. She first heard these voices 7 months ago when they started to make fun of her. She does not drink alcohol or use illicit drugs. Physical and neurological examinations show no abnormalities. On mental status examination, her speech is slow and monotonous; she abruptly stops talking in the middle of sentences and does not finish them. She occasionally directs her attention to the ceiling as if she were listening to someone. Which of the following is the most likely diagnosis?

	Answer	Image
A	Schizophrenia	
B	Schizophreniform disorder	
C	Brief psychotic disorder	
D	Schizoaffective disorder	
E	Mood disorder with psychotic features	
F	Schizotypal personality disorder	

Hint

This patient has both psychotic symptoms and mood symptoms.

Correct Answer

A - Schizophrenia

Explanation Why

This patient has auditory [hallucinations](#) that started 7 months ago and disorganized speech ([thought-blocking](#); stopping in the middle of sentences), which fulfills the criteria for [schizophrenia](#). However, with the addition of her [mood](#) symptoms, she meets the criteria for another psychiatric diagnosis.

B - Schizophreniform disorder

Explanation Why

[Schizophreniform disorder](#) is characterized by [psychotic symptoms](#) that last 1–6 months. This patient's [psychotic symptoms](#) started 7 months ago when she first started hearing voices.

C - Brief psychotic disorder

Explanation Why

Brief [psychotic disorder](#) is characterized by [psychotic symptoms](#) that last ≤ 1 month. This patient's [psychotic symptoms](#) started 7 months ago when she first started hearing voices.

D - Schizoaffective disorder

Explanation But

To meet the criteria for [schizophrenia](#), patients must have impaired function for ≥ 6 months with ≥ 2

of the following symptoms for ≥ 1 month: [delusions](#), [hallucinations](#), disorganized speech, disorganized behavior, and negative symptoms. One of the symptoms must be [delusions](#), [hallucinations](#), or disorganized speech.

Explanation Why

[Schizoaffective disorder](#) is a condition in which patients meet the clinical criteria for both [schizophrenia](#) and a major [mood disorder](#). Patients must exhibit [psychotic symptoms](#) for ≥ 2 weeks in the absence of a major [mood](#) episode, and symptoms of a major [mood disorder](#) must be present for the majority of the duration of illness. This patient has auditory [hallucinations](#) that started 7 months ago and disorganized speech ([thought-blocking](#); stopping in the middle of sentences), which fulfills the criteria for [schizophrenia](#). She also has 5 of the diagnostic depressive symptoms (depressed mood, decreased appetite, [insomnia](#), psychomotor slowing, inability to focus) that started 4 months ago, which fulfills the criteria for [major depressive disorder](#).

E - Mood disorder with psychotic features

Explanation Why

[Mood disorder with psychotic features](#) is characterized by both [psychotic symptoms](#) and [mood](#) symptoms, which are seen in this patient. However, [psychotic symptoms](#) in this condition appear exclusively during [manic](#) or depressive episodes. This patient's [psychotic symptoms](#) started 7 months ago, when she first started hearing voices; her depressive symptoms started 4 months ago.

F - Schizotypal personality disorder

Explanation Why

Individuals with [schizotypal personality disorder](#) typically have an eccentric appearance, hold odd or magical beliefs that are inconsistent with their cultural norms, and have few close relationships. [Psychotic symptoms](#) and [mood](#) symptoms are not features of this [personality disorder](#).

Question # 4

A 17-year-old girl is brought to the physician for a physical examination prior to participating in sports. She has no history of serious illness. She is on the school's cheerleading team and is preparing for an upcoming competition. Menarche was at 13 years of age, and her last menstrual period was 4 months ago. She is 167 cm (5 ft 6 in) tall and weighs 45 kg (99 lb); BMI is 16.1 kg/m^2 . Examination shows pale skin with thin, soft body hair. The patient is at greatest risk for which of the following complications?

	Answer	Image
A	Hyperkalemia	
B	Hyperphosphatemia	
C	Fractures	
D	Recurrent infections	
E	Shortened QT interval	
F	Hyperthyroidism	

Hint

This adolescent girl has secondary amenorrhea, pale skin, thin and soft body hair (lanugo hair), and a BMI $< 18.5 \text{ kg/m}^2$, a constellation of features that should raise suspicion for anorexia nervosa.

Correct Answer

A - Hyperkalemia

Explanation Why

[Anorexia nervosa](#) is associated with [hypokalemia](#), not [hyperkalemia](#). Other common electrolyte imbalances in patients with [anorexia nervosa](#) include ↓ sodium and ↓ [chloride](#), which can occur due to excess fluid intake, impaired renal function or, in the purging type of [anorexia nervosa](#), recurrent vomiting and heavy [diuretic](#) or [laxative](#) use.

B - Hyperphosphatemia

Explanation Why

[Anorexia nervosa](#) is associated with [hypophosphatemia](#), not [hyperphosphatemia](#). Other common electrolyte imbalances in patients with [anorexia nervosa](#) include ↓ sodium and ↓ [chloride](#), which can occur due to excess fluid intake, impaired renal function, or, in the purging type of [anorexia nervosa](#), recurrent vomiting and heavy [diuretic](#) or [laxative](#) use.

C - Fractures

Explanation Why

Severe bone loss and subsequent [fractures](#) are common complications of [anorexia nervosa](#). [Osteopenia](#) and [osteoporosis](#) are caused by a combination of nutritional deficiencies (e.g., [vitamin D deficiency](#)) and [hormone](#) abnormalities (e.g., low [estrogen](#) and testosterone), which lead to decreased bone mineral density and thus significantly increase the risk of [fractures](#). Furthermore, frequent and strenuous physical activity, which is very common in patients with [anorexia nervosa](#) such as this cheerleader, increases the risk of developing [stress fractures](#).

D - Recurrent infections

Explanation Why

[Leukopenia](#) and an overall [malnourished](#) state are [risk factors](#) for developing recurrent infections. However, patients with [anorexia nervosa](#) and [leukopenia](#) do not frequently develop infections; another complication is far more common.

E - Shortened QT interval

Explanation Why

[Anorexia nervosa](#) is associated with [prolonged QT interval](#), not [shortened QT interval](#). A prolonged [QT interval](#) increases the risk of [ventricular arrhythmias](#) such as torsade de pointes, which can lead to [sudden cardiac death](#). Other associated cardiac abnormalities include [hypotension](#) and [bradycardia](#).

F - Hyperthyroidism

Explanation Why

[Anorexia nervosa](#) is associated with [sick euthyroid syndrome](#), not [hyperthyroidism](#). This condition can develop in response to chronic [malnutrition](#) and usually manifests with a decrease in both total and free T₃ despite normal [thyroid](#) function. In some cases, it can progress to [hypothyroidism](#).

Question # 5

A 21-year-old woman has frequent sexual fantasies about female coworkers. When she is with her friends in public, she never misses an opportunity to make derogatory comments about same-sex couples she sees. Which of the following psychological defense mechanisms is she demonstrating?

	Answer	Image
A	Reaction formation	
B	Acting out	
C	Sublimation	
D	Sexualization	
E	Projection	
F	Intellectualization	

Hint

Another example of this defense mechanism would be a man who is angry at a coworker but acts particularly friendly towards him/her.

Correct Answer

A - Reaction formation

Explanation Why

[Reaction formation](#) is a [neurotic ego defense mechanism](#) in which an individual responds to an undesired idea or feeling by acting in a manner that is diametrically opposed to their feelings. This individual criticizes same-sex couples instead of accepting the possibility that she might be attracted to women.

B - Acting out

Explanation Why

A person who is acting out uses confrontational actions to express feelings or thoughts that he/she cannot express verbally: e.g., an employee who constantly fights with her coworkers because she is upset at having been passed over for a promotion.

C - Sublimation

Explanation Why

[Sublimation \(psychiatry\)](#) refers to the transformation of a socially unacceptable impulse or a detrimental emotion into an acceptable action: e.g., an individual who decides to focus on his/her career after a break-up.

D - Sexualization

Explanation Why

[Sexualization \(psychiatry\)](#) is a [neurotic defense mechanism](#) that refers to an inappropriate imposition of sexual significance on a person: e.g., an office worker who will not stop talking about his female coworker's "assets" because she is outperforming him in the workplace.

E - Projection

Explanation Why

[Projection \(psychiatry\)](#) is an [immature defense mechanism](#) in which the individual attributes his/her thoughts, emotions, or behavior to the thoughts, emotions, or behavior of another individual: e.g., a philandering individual who thinks that his/her partner is also cheating on him/her.

F - Intellectualization

Explanation Why

[Intellectualization](#) refers to the excessive use of intellectual processes to avoid acknowledging the anxiety caused by it: e.g., excessively investigating the pathophysiology of a terminal illness instead of reacting to the anxiety caused by it.

Question # 6

A 38-year-old project manager is told by her boss that her team will need to work on an additional project in the coming week for a very important client. This frustrates the woman, who already feels that she works too many hours. Instead of discussing her feelings directly with her boss, the woman leaves a voice message for her boss the next day and deceitfully says she cannot come to work for the next week because of a family emergency. Which of the following psychological defense mechanisms is this individual demonstrating?

	Answer	Image
A	Acting out	
B	Displacement	
C	Passive aggression	
D	Malingering	
E	Blocking	

Hint

Another example of this defense mechanism would be someone leaving a magazine article about annoying eating habits on a coworker's desk in reaction to feeling annoyed with the coworker's eating habits.

Correct Answer

A - Acting out

Explanation Why

[Acting out \(psychiatry\)](#) is an [immature defense mechanism](#) in which an individual expresses repressed or unconscious feelings and thoughts through impulsive and unrestrained actions. If this woman had thrown her phone in response to her frustration instead of making the phone call, she would be demonstrating this defense mechanism.

B - Displacement

Explanation Why

[Displacement \(psychiatry\)](#) is an [immature defense mechanism](#) in which an individual redirects impulses and emotions in a destructive way from a target that is perceived as threatening or unacceptable to another that is perceived as less threatening or more acceptable. If this woman had become angry and hostile toward her subordinates instead of her boss, she would be demonstrating this defense mechanism.

C - Passive aggression

Explanation Why

[Passive aggression](#) is an [immature defense mechanism](#) in which an individual expresses negative feelings toward someone in a nonconfrontational way. Instead of discussing her concerns about feeling overworked directly with her boss, this woman feigns a family emergency and thereby forces her boss to manage the work without her.

D - Malingering

Explanation Why

[Malingering](#) is characterized by intentional, deceptive behavior (e.g., feigning illness) for [secondary gain](#). However, [malingering](#) is not a defense mechanism.

E - Blocking

Explanation Why

[Blocking \(psychiatry\)](#) is an [immature defense mechanism](#) in which an individual unconsciously and transiently inhibits the [thought process](#). If this woman had not recalled the news about the upcoming project and resumed her work at a regular pace, she would be demonstrating this defense mechanism.

Question # 7

A 5-year-old girl is brought to the physician by her parents because of difficulty at school. She does not listen to her teachers or complete assignments as requested. She does not play or interact with her peers. The girl also ignores her parents. Throughout the visit, she draws circles repeatedly and avoids eye contact. Physical and neurological examination shows no abnormalities. Which of the following is the most likely diagnosis?

	Answer	Image
A	Attention-deficit/hyperactivity disorder	
B	Oppositional defiant disorder	
C	Age-appropriate behavior	
D	Autism spectrum disorder	
E	Childhood disintegrative disorder	
F	Rett syndrome	

Hint

Early intervention programs can improve communication and social skills for patients with this disorder.

Correct Answer

A - Attention-deficit/hyperactivity disorder

Explanation Why

Like the girl in this vignette, patients with [ADHD](#) typically present with difficulty paying attention and have poor school performance. However, [ADHD](#) is furthermore characterized by impulsiveness and hyperactivity, which are not present in this patient. Moreover, poor social skills (e.g., reduced [eye](#) contact), repetitive/stereotyped behavior, and fixated interests suggest a different diagnosis.

B - Oppositional defiant disorder

Explanation Why

[Oppositional defiant disorder](#) is characterized by anger, irritable [mood](#), and defiant behavior towards figures of authority, which may also cause problems at school for ≥ 6 months. Although this patient does not listen to her teachers or her mother, she does not argue with or act out against them.

C - Age-appropriate behavior

Explanation Why

Children with normal language development speak in three-word sentences by age 3 and recount complex stories by age 4. This patient's refusal to speak with her parents and peers is not normal behavior for a 5-year-old child. Being inattentive, ignoring what other people say, preferring to play alone, and repetitive activity might be age-appropriate to a certain degree. This case, however, exceeds normal levels of such behavior.

D - Autism spectrum disorder

Explanation Why

Although clinical presentation varies widely, [autism spectrum disorder](#) (ASD) is characterized by impairment in social interaction and restrictive patterns of behavior or interests. This patient's trouble communicating, together with her inattentiveness, refusal to speak and make [eye](#) contact, and her attraction to a repetitive activity (drawing circles), is typical of patients with ASD. While the exact cause is unknown, twin studies strongly suggest a genetic predisposition.

E - Childhood disintegrative disorder

Explanation Why

Patients with [childhood disintegrative disorder](#) initially meet their [developmental milestones](#) before losing them again over the course of a few months. This patient's history does not describe developmental regression.

F - Rett syndrome

Explanation Why

Patients with [Rett syndrome](#) initially meet [developmental milestones](#) before experiencing a progressive loss of cognitive and fine motor skills beginning at 7–24 months of age. Pronounced verbal disability is common, and patients may exhibit characteristic handwringing. Although this patient refuses to speak, her fine motor skills are developmentally appropriate and her history does not describe developmental regression or distinctive handwringing.

Question # 8

A 7-year-old boy is brought to the physician by his mother for the evaluation of abdominal pain and trouble sleeping for the past 6 months. His mother says he complains of crampy abdominal pain every morning on school days. He started attending a new school 7 months ago and she is concerned because he has missed school frequently due to the abdominal pain. He also has trouble falling asleep at night and asks to sleep in the same room with his parents every night. He has not had fever, vomiting, diarrhea, or weight loss. He sits very close to his mother and starts to cry when she steps out of the room to take a phone call. Abdominal examination shows no abnormalities. Which of the following is the most likely diagnosis?

	Answer	Image
A	Separation anxiety disorder	
B	Normal behavior	
C	Irritable bowel syndrome	
D	Conduct disorder	
E	Acute stress disorder	

Hint

This patient's abdominal pain on school days and his attachment to his mother suggests a disorder that also manifests with nightmares of losing an attachment figure.

Correct Answer

A - Separation anxiety disorder

Explanation Why

This child's 6-month history of abdominal [pain](#) on school days and clingy behavior towards his mother is most consistent with [separation anxiety disorder](#). [Separation anxiety disorder](#) most commonly occurs in children at a [mean](#) age of 7.5 years with physical symptoms when separated from attachment figures and is characterized by significant distress or impairment in academic and/or social functioning, as seen in this child. Treatment options include [psychotherapy](#) (e.g., [cognitive behavioral therapy](#), exposure therapy), [family therapy](#), and play therapy.

B - Normal behavior

Explanation Why

Although it is not uncommon for children to have non-specific somatic complaints and unusual behavior at this age, the degree of impairment in academic and social functioning (missing school) and significant distress this child is experiencing is not consistent with normal behavior.

C - Irritable bowel syndrome

Explanation Why

[Irritable bowel syndrome](#) (IBS) should be considered in a patient with nonspecific abdominal complaints and changes in bowel habits in the absence of other concerning features (e.g., weight loss, early satiety, [hematochezia](#)). [IBS](#) typically manifests with abdominal [pain](#) that is relieved by defecation, along with a combination of [diarrhea](#), [constipation](#), and bloating. This patient, however, presents with a 6-month history of stable, crampy abdominal [pain](#) that is only present on school day mornings, making [IBS](#) an unlikely diagnosis.

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D - Conduct disorder

Explanation Why

[Conduct disorder](#) is characterized by pervasive behavior against societal norms and the violation of the rights of others (e.g., arson, theft, violence towards others). A minority of children with [conduct disorder](#) will go on to develop [antisocial personality disorder](#) as adults. School-related behavioral problems are often a prominent feature of [conduct disorder](#). However, this patient has no history of aggression or other violating behavior towards others.

E - Acute stress disorder

Explanation Why

[Acute stress disorder](#) is defined by a mix of anxiety, depression, [mood](#), and behavioral symptoms for a duration of 3 days to 1 month, that occurs within 1 month of a severely [traumatic event](#). This child has had symptoms for 6 months, and, despite his recent history of changing schools, he has no history of a recent major psychosocial stressor such as life-threatening illness, the death of a loved one, or divorce of parents.

Question # 9

An investigator, studying learning in primates, gives an experimental chimpanzee a series of puzzles to solve. The chimpanzee solves the puzzle when he is able to place a set of wooden blocks sequentially inside the next biggest block. When a puzzle is solved successfully, a 30-second audio clip of a pop song plays. 15 seconds after that, a tangerine drops into the chimpanzee's room. After 2 days of this regimen, the chimpanzee undergoes functional magnetic resonance imaging (fMRI) of his brain while hearing the audio clip, which shows markedly elevated neurotransmission in the ventral tegmental area and substantia nigra. Which of the following best explains the finding on fMRI?

	Answer	Image
A	Positive reinforcement	
B	Negative reinforcement	
C	Displacement	
D	Classical conditioning	
E	Extinction	
F	Transference	

Hint

The ventral tegmental area and the substantia nigra are important parts of the brain's dopaminergic reward system. This chimpanzee experiences an involuntary response on fMRI to a neutral stimulus (the pop song).

Correct Answer

A - Positive reinforcement

Explanation Why

The chimpanzee's behavior (i.e., solving the puzzle) is positively reinforced when it is rewarded with a tangerine. This technique is a component of operant conditioning and should reinforce the chimpanzee's behavior in the future. However, this is a voluntary response and would not explain the fMRI finding.

B - Negative reinforcement

Explanation Why

Negative reinforcement is a component of operant conditioning in which the removal of a stimulus in response to a behavior increases the behavior. In this case, the chimpanzee is rewarded by the addition of a stimulus (i.e., the tangerine), not the removal of a stimulus. Additionally, operant conditioning typically leads to voluntary responses and would not cause the observed fMRI changes.

C - Displacement

Explanation Why

[Displacement \(psychiatry\)](#) is an [immature defense mechanism](#) in which an individual redirects impulses and emotions from a target that is perceived as threatening or unacceptable to another that is perceived as less threatening or more acceptable. This mechanism does not apply to this scenario and would not cause the observed fMRI changes.

D - Classical conditioning

Explanation Why

The fMRI finding seen here is best explained by an involuntary response due to classical conditioning. In this example, the biologically potent, unconditioned stimulus (UCS), i.e., the tangerine, leads to an unconditioned response (UCR), i.e., stimulation of the [dopaminergic](#) reward system. The UCS is repeatedly paired with a neutral stimulus ([NS](#)), i.e., the pop song, eventually leading to the response by itself. The [NS](#) then becomes a conditioned stimulus (CS), which then leads to a conditioned response (CR).

E - Extinction

Explanation Why

Extinction (psychology) can occur in both, operant and classical conditioning, and describes how a learned behavior is unlearned again. It could happen when the song is no longer paired with the tangerine (classical conditioning) or when solving the puzzle is no longer paired with the tangerine (operant conditioning). However, it would not cause the observed fMRI changes.

F - Transference

Explanation Why

[Transference](#) is a phenomenon in which a patient projects feelings (positive and/or negative) about important persons onto the clinician. This mechanism does not apply to this scenario and would not cause the observed fMRI changes.

Question # 10

A 53-year-old woman with type 2 diabetes mellitus is admitted for evaluation of recurrent episodes of nausea, tremors, and excessive sweating. She works as a nurse and reports self-measured blood glucose levels below 50 mg/dL on several occasions. Her family history is positive for borderline personality disorder. The only medication listed in her history is metformin. Which of the following is the most appropriate initial action by the physician?

	Answer	Image
A	Report the patient to her employer	
B	Ask the patient if she is taking any medications other than metformin	
C	Search the patient's belongings for insulin	
D	Measure glycated hemoglobin concentration	
E	Measure serum C-peptide concentration	

Hint

This patient reports recurrent hypoglycemic episodes. Factitious disorder, which is more common among women and healthcare workers, should be considered in all patients who are evaluated for hypoglycemia.

Correct Answer

A - Report the patient to her employer

Explanation Why

Reporting the patient to her employer is inappropriate because it breaks [confidentiality](#). Physicians are ethically and legally obliged to keep patients' medical information confidential. Medical information should only be shared with an employer if the patient requests and authorizes it.

B - Ask the patient if she is taking any medications other than metformin

Explanation But

A diagnosis of factitious [hypoglycemia](#) can be made by measuring serum [insulin](#), [C-peptide](#), [proinsulin](#), and [insulin](#) secretagogue concentrations during [hypoglycemic](#) episodes. Nonsuppressed serum [insulin](#) concentrations with decreased serum [C-peptide](#) and [proinsulin](#) concentrations are consistent with a diagnosis of factitious [hypoglycemia](#) caused by exogenous [insulin](#) use.

Explanation Why

To evaluate the potential cause of this patient's episodic [hypoglycemia](#), a thorough review of her medications should be performed. This patient's history only indicates she is taking [metformin](#), which does not increase the risk of developing [hypoglycemia](#). Factitious [hypoglycemia](#) should be considered in this patient, especially given her occupation, which means that she should be asked about the possible use of [insulin](#) and [insulin](#) secretagogues (e.g., [sulfonylureas](#), [meglitinides](#)).

C - Search the patient's belongings for insulin

Explanation Why

Searching the patient's belongings for [insulin](#) is inappropriate because it violates her privacy. The principle of [autonomy](#), one of the core principles of [medical ethics](#), involves respecting patient

[confidentiality](#) and privacy.

D - Measure glycated hemoglobin concentration

Explanation Why

Measurement of [glycated hemoglobin](#) concentration ([HbA1c](#)) is not the most appropriate next step in management for this patient. [HbA1c](#) is commonly used to diagnose and monitor the glycemic control of patients with [diabetes mellitus](#) and does not play a role in the evaluation of [hypoglycemia](#).

E - Measure serum C-peptide concentration

Explanation Why

Measurement of serum [C-peptide](#) concentration (in addition to serum [insulin](#), [proinsulin](#), and [insulin](#) secretagogue concentrations) during [hypoglycemic](#) episodes is used to evaluate patients who are suspected of factitious [hypoglycemia](#). Though this diagnosis should be considered in all patients who are evaluated for [hypoglycemia](#), this is not the most appropriate next step in management for this patient.

Question # 11

A 60-year-old man comes to the physician for a routine physical examination. He lives in a group home and takes no medications. During the appointment, he frequently repeats the same information and needs to be reminded why he is at the doctor's office. He says that he is a famous poet and recently had a poem published in a national magazine. His vital signs are within normal limits. He has a constricted affect. Neurological examination shows no focal deficits. On mental status examination, he has no long-term memory deficits and is able to count in serial sevens without error. An MRI of the brain shows atrophy of the anterior thalami and small mamillary bodies. Which of the following is the most likely predisposing factor for this patient's condition?

	Answer	Image
A	Consumption of undercooked meat	
B	Chronic hypertension	
C	Intravenous heroin use	
D	Alcohol use disorder	
E	Spirochete infection	

Hint

The patient shows signs of confabulation and has marked deficits in short-term memory, while his long-term memory and other cognitive skills appear to be intact. Atrophic lesions in the anterior thalami and small mamillary bodies support a diagnosis of Korsakoff syndrome.

Correct Answer

A - Consumption of undercooked meat

Explanation Why

Consumption of undercooked meat is a [risk factor](#) for ingestion of *Toxoplasma gondii*, which can cause cerebral [toxoplasmosis](#), especially in [immunocompromised](#) individuals. [Toxoplasmosis](#) typically manifests with a [headache](#), [fever](#), confusion, and focal neurological deficits. Impaired short-term [memory](#) and [confabulation](#), as observed in this patient, are not associated with [toxoplasmosis](#). Moreover, brain imaging would show [ring-enhancing](#) lesions, not localized [atrophy](#).

B - Chronic hypertension

Explanation Why

Chronic [hypertension](#) is associated with the development of [vascular dementia](#), which manifests as stepwise deterioration of cognitive function in combination with asymmetric or focal deficits. This patient does exhibit short-term [memory](#) deficits. However, [MRI](#) of a patient with [vascular dementia](#) would reveal multiple [white matter infarcts](#), in contrast to the mammillary [atrophy](#) seen here. Moreover, this patient's [confabulation](#) and the fact that his long-term [memory](#) remains intact is not entirely consistent with [vascular dementia](#).

C - Intravenous heroin use

Explanation Why

Intravenous heroin use can lead to [infective endocarditis](#), the complications of which include cerebral [septic emboli](#), [meningitis](#), and [brain abscess](#). Depending on the affected brain regions, neurological deficits of varying severity may be present. However, affected individuals typically would also have [fever](#), [headache](#), and in some cases meningismus, [seizures](#), and/or focal deficits. Brain imaging would reveal acute [inflammation](#), emboli, or [ring-enhancing](#) lesions as opposed to the localized [atrophy](#) seen in this patient.

D - Alcohol use disorder

Explanation Why

[Korsakoff syndrome](#) occurs due to chronic [thiamine deficiency](#) and in the developed world is most commonly due to underlying [alcohol use disorder](#). [Thiamine](#) plays an important role as a [cofactor](#) in cerebral [glucose metabolism](#), [myelin](#) sheath maintenance, and synthesis of [neurotransmitters](#). Disruption of these processes due to [thiamine deficiency](#) results in impaired axonal conduction and causes the characteristic features of both [Wernicke encephalopathy](#) and [Korsakoff syndrome](#). [Atrophy](#) of the mamillary bodies is a relatively specific indicator of [Korsakoff syndrome](#).

E - Spirochete infection

Explanation Why

Without treatment, [syphilis](#) infection can progress to [neurosyphilis](#), the manifestations of which are highly variable. Late [neurosyphilis](#) usually involves the brain and [spinal cord](#) parenchyma, causing weakness, progressive [dementia](#), personality changes, as well as [tabes dorsalis](#). This patient's lack of [dysarthria](#), facial and limb [hypotonia](#), and pupillary abnormalities ([Argyll-Robertson pupils](#)) makes [spirochete](#) infection unlikely.

Question # 12

A 46-year-old woman comes to the physician for a cognitive evaluation. She is an office manager. She has had increasing difficulties with multitasking and reports that her job performance has declined over the past 1 year. On mental status examination, short-term memory is impaired and long-term memory is intact. Laboratory studies, including thyroid-stimulating hormone and vitamin B₁₂, are within the reference range. An MRI of the brain shows generalized atrophy, most pronounced in the bilateral medial temporal lobes and hippocampi. If this patient's condition has a genetic etiology, which of the following alterations is most likely to be found on genetic testing?

	Answer	Image
A	Noncoding hexanucleotide repeats	
B	Deletion of chromosome 21q	
C	Mutation in presenilin 1	
D	Expansion of CAG trinucleotide repeat	
E	Presence of ApoE ε4 allele	

Hint

This patient presents with selective short-term memory impairment, impaired executive function (decline in job performance, impaired multitasking), and medial temporal and hippocampal atrophy on neuroimaging, which is most suggestive of Alzheimer disease (AD). When AD occurs before 65 years of age, it is considered early-onset.

Correct Answer

A - Noncoding hexanucleotide repeats

Explanation Why

Noncoding hexanucleotide repeats are implicated in familial [frontotemporal dementia \(FTD\)](#). However, this patient presents with signs and symptoms of AD, which is not associated with noncoding hexanucleotide repeats and does not manifest with the characteristic personality and behavioral changes as well as the [parkinsonism](#) typically seen in [FTD](#).

B - Deletion of chromosome 21q

Explanation Why

The deletion of [chromosome](#) 21q causes a rare syndrome that can cause a variety of manifestations, including [intellectual disability](#), behavioral issues, developmental delay, and abnormal facial feature, but it is not associated with AD. In contrast, the presence of an extra copy of [chromosome](#) 21, i.e., [trisomy 21 \(Down syndrome\)](#), is associated with an increased risk of early-onset [Alzheimer disease](#) due to increased [amyloid precursor protein \(APP\)](#) production as a result of a triplicate [APP gene](#).

C - Mutation in presenilin 1

Explanation Why

Mutations in [presenilin 1](#) are associated with early-onset [Alzheimer disease](#). The trait is [autosomal dominant](#) and leads to unusually high production of [beta-amyloid](#), which results in the early formation of [amyloid plaques](#).

D - Expansion of CAG trinucleotide repeat

Explanation Why

Expansion of CAG [trinucleotide repeats](#) is found in [Huntington disease](#). [Dementia](#) is an important component of the clinical syndrome, but it is also accompanied by jerky, uncontrolled motor symptoms ([chorea](#)). The absence of motor involvement in this patient makes [Huntington disease](#) extremely unlikely.

E - Presence of ApoE ϵ 4 allele

Explanation Why

The presence of the ϵ 4 [allele](#) of [ApoE](#) is associated with an increased risk for late-onset AD but not early-onset AD, as seen in this patient. The protein product of this [gene](#) binds to [amyloid \$\beta\$](#) and is thought to initiate a series of events that accelerate neurodegeneration.

Question # 13

A 53-year-old man is brought to the physician by his wife because of strange behavior and emotional outbursts for the past 6 months. He was previously healthy and physically active, but he recently started binge-eating candy and stopped exercising. He was fired from his job for inappropriate behavior after he undressed in the office and made lewd remarks to several female coworkers. He claims there is nothing wrong with his behavior. On mental status examination, he is alert and irritable but cooperative. Short-term recall is normal but he has some word-finding difficulties. Babinski reflex is positive bilaterally. This patient's symptoms are most likely due to a degenerative process in which of the following regions of the brain?

	Answer	Image
A	Frontal cortex	
B	Substantia nigra	
C	Caudate nucleus	
D	Hippocampus	
E	Corona radiata	

Hint

The development of disinhibited behavior (e.g., hypersexuality), exaggerated emotional display, binge-eating, aphasia, and primitive reflexes in a male between the ages of 40–60 years suggests dementia with degeneration in the region of the brain responsible, in part, for personality, judgment, and emotion.

Correct Answer

A - Frontal cortex

Explanation Why

A degenerative process of the frontal cortex is seen in [frontotemporal dementia \(FTD\)](#). The frontal lobes are involved in many aspects of [cognition](#) and behavior, including personality, emotion, [judgment](#), voluntary movement, problem-solving, and attention. [FTD](#) can manifest with changes in personality, disruptive social behavior, and [aphasia](#), as seen in this patient. Symptoms appearing later in the course of the disease include [parkinsonism](#), [disorientation](#), and [memory](#) impairment.

B - Substantia nigra

Explanation Why

A degenerative process of the [substantia nigra](#) is seen in [Parkinson disease](#), [multiple system atrophy](#), and [Lewy body dementia](#). These conditions can manifest with [dementia](#) and personality changes, which are seen in this patient. However, this patient lacks the prominent [parkinsonism](#) (e.g., [bradykinesia](#), [tremor](#)) that is typically present with involvement of the [substantia nigra](#).

C - Caudate nucleus

Explanation Why

A degenerative process of the [caudate nucleus](#) is seen in [Huntington disease](#). This hereditary condition can manifest with [dementia](#), personality changes, and [hyperreflexia](#), which are seen in this patient. However, he lacks the involuntary motor symptoms (e.g., [chorea](#)) typically seen with degeneration of the [caudate nucleus](#).

D - Hippocampus

Explanation Why

A degenerative process of the [hippocampus](#) can be seen in conditions such as [Alzheimer disease](#) (AD), mesial temporal sclerosis, or [temporal lobe epilepsy](#). The emotional instability and [aphasia](#) in this patient could be consistent with [Alzheimer disease](#) but he lacks the [memory](#) deficits that would be expected with degeneration of the [hippocampus](#).

E - Corona radiata

Explanation Why

Distortion of the fibers of the corona radiata is seen in [normal pressure hydrocephalus](#) (NPH), which classically presents with [dementia](#), [urinary incontinence](#), and [ataxia](#). The absence of [urinary incontinence](#) and [ataxia](#) makes degeneration of the [corona radiata](#) an unlikely etiology of his symptoms.

Question # 14

A 16-year-old girl is brought to the physician by her father because of concerns about her behavior during the past 2 years. She does not have friends and spends most of the time reading by herself. Her father says that she comes up with excuses to avoid family dinners and other social events. She states that she likes reading and feels more comfortable on her own. On mental status examination, her thought process is organized and logical. Her affect is flat. Which of the following is the most likely diagnosis?

	Answer	Image
A	Schizoid personality disorder	
B	Schizotypal personality disorder	
C	Antisocial personality disorder	
D	Avoidant personality disorder	
E	Schizophreniform disorder	
F	Autism spectrum disorder	

Hint

This girl has a condition that shares similarities with the negative symptoms of schizophrenia.

Correct Answer

A - Schizoid personality disorder

Explanation Why

This patient has signs of social withdrawal, a preference for solitary activities, and a flattened affect, all of which are features of [schizoid personality disorder](#). Individuals with this [personality disorder](#) neither desire nor enjoy close relationships. They show little interest in interpersonal or sexual contact and often appear indifferent or emotionally cold towards others. Of note, the DSM-5 states that [personality disorders](#) can be diagnosed in patients < 18 years of age if features have been present for ≥ 1 year. The only exception to this rule is [antisocial personality disorder](#), which can only be diagnosed in patients ≥ 18 years of age.

B - Schizotypal personality disorder

Explanation Why

Individuals with [schizotypal personality disorder](#) tend to have a constricted affect and lack of close friends due to discomfort in social interactions and impaired capacity for close relationships. However, additional features of this [personality disorder](#) include eccentric behavior (e.g., peculiar [speech](#)) and distortions of perception and [cognition](#) (e.g., [magical thinking](#), superstitions), which are not seen in this case.

C - Antisocial personality disorder

Explanation Why

Individuals with [antisocial personality disorder](#) tend to be cold and detached, but they are also [prone](#) to deceitful, manipulative, and impulsive behavior and disregard laws and ethical norms if this provides them personal profit or pleasure. Furthermore, this diagnosis is only made if the individual is ≥ 18 years of age and there is evidence of [conduct disorder](#) prior to 15 years of age.

D - Avoidant personality disorder

Explanation Why

Individuals with [avoidant personality disorder](#) tend to avoid social interactions, as this patient does, but desire social relationships. They tend to have extreme anxiety and shyness in social situations brought on by feelings of inadequacy and fear of rejection. This patient does not have an inhibited desire to establish personal relationships.

E - Schizophreniform disorder

Explanation Why

[Schizophreniform disorder](#) is diagnosed in patients who have [delusions](#), [hallucinations](#), disorganized speech, and/or negative symptoms that last for 1–6 months. These symptoms are not seen in this case.

F - Autism spectrum disorder

Explanation Why

[Autism spectrum disorder](#) (ASD) is characterized by impaired social interaction and communication but also includes repetitive and stereotyped behavior, interests, and activities. Symptoms of this disorder typically manifest in early childhood, not [adolescence](#).

Question # 15

A 24-year-old graduate student is brought to the emergency department by her boyfriend because of chest pain that started 90 minutes ago. Her boyfriend says she has been taking medication to help her study for an important exam and has not slept in several days. On examination, she is diaphoretic, agitated, and attempts to remove her IV lines and ECG leads. Her temperature is 37.6°C (99.7°F), pulse is 128/min, and blood pressure is 163/97 mmHg. Her pupils are dilated. The most appropriate next step in treatment is the administration of which of the following?

	Answer	Image
A	Dantrolene	
B	Propranolol	
C	Activated charcoal	
D	Ketamine	
E	Lorazepam	
F	Haloperidol	

Hint

The patient's symptoms of chest pain, diaphoresis, agitation, tachycardia, hypertension, and mydriasis in the setting of recent exam studying and insomnia suggest stimulant intoxication, most likely due to amphetamine use.

Correct Answer

A - Dantrolene

Explanation Why

[Dantrolene](#) is not used to treat stimulant intoxication. Instead, it is used to treat [neuroleptic malignant syndrome \(NMS\)](#) or [malignant hyperthermia](#), which can result in increased body temperature, [diaphoresis](#), [tachycardia](#), [hypertension](#), and altered mental status. [NMS](#) typically occurs with [antipsychotic](#) medications, and [malignant hyperthermia](#) occurs following the administration of [volatile anesthetics](#) or [muscle relaxants](#) such as [succinylcholine](#). The body temperature would usually be extremely high ($> 41^{\circ}\text{C}$) and [mydriasis](#) would not be expected in either of these conditions.

B - Propranolol

Explanation Why

In patients with stimulant overdose, [catecholamine](#) surge causes vasoconstriction mediated through [alpha-1 receptor](#) stimulation. Blockage of beta-receptors by [beta blockers](#) such as [propranolol](#) can cause unopposed stimulation of [alpha-1 receptors](#) and thereby worsen vasoconstriction. The use of [beta-blockers](#) is, therefore, contraindicated in this patient.

C - Activated charcoal

Explanation Why

[Activated charcoal](#) is not very useful more than 1–2 hours after the ingestion of a toxic substance. Moreover, [activated charcoal](#) requires oral administration, which is generally contraindicated in agitated or drowsy patients due to the risk of [aspiration](#).

D - Ketamine

Explanation Why

[Ketamine](#) is typically used to sedate patients prior to [rapid sequence intubation](#) or as an emergency anesthetic for [polytrauma](#) patients with risk of [hypotension](#). In this patient, [intubation](#) or anesthesia is not indicated. Moreover, [ketamine](#) can further elevate the blood pressure and [heart rate](#) and is, therefore, contraindicated in patients with [hypertension](#) and [tachycardia](#).

E - Lorazepam

Explanation But

In this patient with symptoms of cardiac [ischemia](#), [antihypertensives](#) such as [nitroprusside](#) or phentolamine should also be administered if blood pressure does not decrease with the administration of [benzodiazepines](#).

Explanation Why

Patients with symptomatic stimulant intoxication (e.g., [amphetamine](#) overdose, [cocaine](#) overdose) should be treated with [benzodiazepines](#) such as [lorazepam](#). [Benzodiazepines](#) provide a sedative effect, help control [hypertension](#), and prevent [seizures](#). Patients who are febrile should also be cooled externally.

F - Haloperidol

Explanation Why

[Antipsychotics](#) such as [haloperidol](#) should generally be avoided in patients with suspected stimulant intoxication because they can interfere with heat dissipation, prolong the [QTc](#) interval, and potentially decrease the [seizure](#) threshold.

Question # 16

A 27-year-old woman comes to the physician because she has been hearing voices in her apartment during the past year. She also reports that she has been receiving warning messages in newspaper articles during this period. She thinks that “someone is trying to kill her”. She avoids meeting her family and friends because they do not believe her. She does not use illicit drugs. Physical examination shows no abnormalities. Mental status examination shows a normal affect. Which of the following is the most appropriate long-term treatment?

	Answer	Image
A	Quetiapine	
B	Fluphenazine	
C	Lithium carbonate	
D	Sertraline	
E	Midazolam	
F	Clozapine	

Hint

This patient with auditory hallucinations and delusions (ideas of reference, delusions of persecution) for more than 6 months meets the diagnostic criteria for schizophrenia.

Correct Answer

A - Quetiapine

Explanation Why

The first-line maintenance treatment for [schizophrenia](#) is a [second-generation \(“atypical”\) antipsychotic](#) such as [quetiapine](#). Compared to [first-generation \(“typical”\) antipsychotics](#), [atypical antipsychotics](#) carry a lower risk of [extrapyramidal symptoms](#), [anticholinergic effects](#), and [hyperprolactinemia](#). [Clozapine](#) is also an [atypical antipsychotic](#) but it is reserved for use in treatment-resistant [schizophrenia](#) because it can cause [agranulocytosis](#). Some patients with [schizophrenia](#) also have negative symptoms (e.g., flattened affect, [anhedonia](#)) in addition to positive symptoms (e.g., [delusions](#), [hallucinations](#), disorganized speech, [catatonia](#)). Negative symptoms of schizophrenia are generally difficult to treat but [atypical antipsychotics](#) are more effective than [typical antipsychotics](#) in treating negative symptoms.

B - Fluphenazine

Explanation Why

A [typical antipsychotic](#) such as [fluphenazine](#) is preferred as a second-line drug in patients with [schizophrenia](#) because it is associated with a higher risk of [extrapyramidal side effects](#) than [atypical antipsychotics](#).

C - Lithium carbonate

Explanation Why

A [mood stabilizer](#) such as [lithium](#) carbonate is a first-line option for maintenance treatment of psychiatric disorders associated with [mania](#) such as [schizoaffective disorder](#) and [bipolar disorder type 1](#). Patients with either of these conditions can have [delusions](#) and [auditory hallucinations](#) during the [manic episode](#). However, other features characteristic of [mania](#) such as increased talkativeness, [flight of ideas](#), easy distractibility, [grandiosity](#), increased impulsivity, and psychomotor agitation are not present in this patient. [Mood stabilizers](#) are not typically used to treat [schizophrenia](#), which is the

most likely diagnosis in this case.

D - Sertraline

Explanation But

[SSRIs](#) can be used to treat postpsychotic depression, which can occur in patients with [schizophrenia](#) after the resolution of [psychotic symptoms](#). [SSRIs](#) can also be used as an adjunct to treat depression in patients with [schizoaffective disorder](#), which can present similarly with features of [psychosis](#).

Explanation Why

An [SSRI](#) such as [sertraline](#) is used as a first-line drug to treat [major depressive disorder \(MDD\)](#) and [anxiety disorders](#). A variant of [MDD](#) called [major depressive disorder with psychotic features \(psychotic depression\)](#) can present with [delusions](#) and [auditory hallucinations](#). However, the patient with [psychotic depression](#) would have a sad or flattened affect and other features characteristic of depression such as feelings of worthlessness, [anhedonia](#), diminished concentration, sleep disturbance, weight change, or [suicidal ideation](#). [SSRIs](#) are not used to treat [psychosis](#) in [schizophrenia](#), which is the most likely diagnosis in this patient.

E - Midazolam

Explanation But

Long-acting [benzodiazepines](#) (e.g., [clonazepam](#), [lorazepam](#)) can be used as an adjunct to [SSRIs](#) or [SNRIs](#) in patients with severe [anxiety disorders](#).

Explanation Why

[Midazolam](#) can be used to sedate agitated or aggressive patients. Patients with [schizophrenia](#) may become agitated or aggressive during a [psychotic episode](#). This patient, however, is neither agitated nor aggressive. Moreover, a short-acting [benzodiazepine](#) such as [midazolam](#) is not used for maintenance therapy in any psychiatric disorder.

F - Clozapine

Explanation Why

[Clozapine](#) is a very potent [second-generation antipsychotic](#) but it is associated with [agranulocytosis](#). Therefore, it is typically reserved for use in treatment-resistant [schizophrenia](#).

Question # 17

A 30-year-old woman comes to the physician because of difficulty sleeping. She is afraid of falling asleep and gets up earlier than desired. Four months ago, she was the driver in a car accident that resulted in the death of her unborn child. She has vivid nightmares of the event and reports that she frequently re-experiences the accident. She blames herself for the death of her child, has stopped working as an accountant, avoids driving in cars, and has withdrawn from her parents and close friends. Which of the following is the most likely diagnosis?

	Answer	Image
A	Acute stress disorder	
B	Major depressive disorder	
C	Post-traumatic stress disorder	
D	Major depressive disorder with peripartum onset	
E	Normal grief	
F	Adjustment disorder	

Hint

After experiencing a car accident and the loss of her unborn child 4 months ago, this patient has sleep disturbances, nightmares, flashbacks, and feelings of guilt.

Correct Answer

A - Acute stress disorder

Explanation Why

[Acute stress disorder](#) can occur in response to [traumatic events](#) and is characterized by symptoms very similar to those present in this patient. However, [acute stress disorder](#) is diagnosed when the duration of symptoms is 3 days to 1 month following the [traumatic event](#); this patient has been experiencing symptoms for 4 months.

B - Major depressive disorder

Explanation Why

[Major depressive disorder](#) can occur following [traumatic events](#) and present with impaired functioning in important areas of life (e.g., work). However, diagnosis of this condition requires at least 5 of 9 A criteria ([SIGECAPS](#)), of which this patient only has 2 (sleep disturbances and guilt).

C - Post-traumatic stress disorder

Explanation But

Treatment of [PTSD](#) includes [cognitive behavioral therapy](#) and pharmacological therapy with [SSRIs](#), [SNRIs](#) (first-line), and [prazosin](#) (to improve sleep).

Explanation Why

[Post-traumatic stress disorder \(PTSD\)](#) can develop in response to experiencing a [traumatic event](#) (e.g., a car accident). Symptoms include distressed [mood](#), altered reactivity (e.g., sleep disturbances), avoidance of triggering stimuli (driving in this case), and [intrusive symptoms](#) such as [flashbacks](#) and nightmares, all of which are present in this patient. A diagnosis of [PTSD](#) is made if these symptoms last > 1 month and impair social and/or occupational functioning as seen in this woman, who has

stopped working and withdrawn from her friends and family.

D - Major depressive disorder with peripartum onset

Explanation Why

[Major depressive disorder with peripartum onset](#) can occur following [miscarriage](#) and [intrauterine fetal demise](#) and present with impaired functioning in important areas of life (e.g., work). However, diagnosis of this condition requires at least 5 of 9 A criteria ([SIGECAPS](#)), of which this patient only has 2 (sleep disturbances and guilt).

E - Normal grief

Explanation Why

[Normal grief](#) can manifest with sleep disturbances and feelings of guilt following the loss of a loved one as seen in this patient who has lost her child. However, [normal grief](#) does not normally impair daily functioning. This patient's inability to work, avoidance of driving, and social withdrawal all suggest a pathological condition. Furthermore, [flashbacks](#) are not a feature of [normal grief](#).

F - Adjustment disorder

Explanation Why

[Adjustment disorder](#) can occur in response to a [traumatic event](#) and manifest with sleep disturbances and impaired functioning as seen in this patient. However, this condition is a diagnosis of exclusion; this patient's symptoms are better explained by another psychological disorder.

Question # 18

A 41-year-old man is brought to the emergency department after a suicide attempt. His wife found him on the bathroom floor with an empty bottle of medication next to him. He has a history of major depressive disorder. His only medication is nortriptyline. His pulse is 127/min and blood pressure is 90/61 mm Hg. Examination shows dilated pupils and dry skin. The abdomen is distended and there is dullness on percussion in the suprapubic region. An ECG shows tachycardia and a QRS complex width of 130 ms. In addition to intravenous fluid resuscitation, which of the following is the most appropriate pharmacotherapy?

	Answer	Image
A	Atropine	
B	Naloxone	
C	Glucagon	
D	Cyproheptadine	
E	Ammonium chloride	
F	Sodium bicarbonate	
G	Lorazepam	

Hint

This patient presents with prolonged QRS complexes (≥ 100 ms), tachycardia, hypotension, mydriasis, dry skin, and urinary retention. These symptoms are suggestive of an overdose of nortriptyline, a tricyclic antidepressant (TCA).

Correct Answer

A - Atropine

Explanation Why

Because TCAs have [anticholinergic](#) properties, administering [anticholinergic atropine](#) to this patient with suspected [nortriptyline](#) toxicity would worsen the symptoms caused by cholinergic blockade ([urinary retention](#), [tachycardia](#), bowel distention, dry [skin](#)). Instead, [atropine](#) is an [antidote](#) used in [organophosphate poisoning](#), which results in [parasympathetic](#) hyperstimulation that manifests as sweating, vomiting, [diarrhea](#), [miosis](#), [bradycardia](#), bronchospasm.

B - Naloxone

Explanation Why

[Naloxone](#) is the [antidote](#) for [opioid overdose](#). Signs of [opioid overdose](#) include decreased [respiratory rate](#), shallow breathing, [bradycardia](#), and [miosis](#), which is not consistent with this patient's presentation. [Naloxone](#) causes [tachycardia](#) and would worsen this patient's symptoms.

C - Glucagon

Explanation Why

[Glucagon](#) is an [antidote](#) that is used for [beta-blocker](#) toxicity. Blockage of the [beta receptors](#) in the [heart](#) and blood vessels results in profound [hypotension](#) and [bradycardia](#) in patients with [beta-blocker overdose](#). [Glucagon](#) enhances [myocardial contractility](#) via the [cAMP](#) pathway, which is independent of beta-receptor stimulation. Administration of [glucagon](#) not recommended in the management of patients with [TCA toxicity](#) as it would worsen the [tachycardia](#).

D - Cyproheptadine

Explanation Why

[Cyproheptadine](#) has no role in the management of [TCA toxicity](#) but is an [antidote](#) for [serotonin syndrome](#). [Serotonin syndrome](#) presents with autonomic hyperactivity (nausea, sweating, [tremors](#), [tachycardia](#), [hypertension](#)), neuromuscular hyperactivity ([hyperreflexia](#), impaired gait), mental status changes ([disorientation](#) to place and time), and hyperthermia in patients taking serotonergic drugs (e.g., [citalopram](#), [venlafaxine](#)). The presence of dry [skin](#) and [hypotension](#), as seen in this case, are not features of [serotonin syndrome](#).

E - Ammonium chloride

Explanation Why

[Ammonium chloride](#) is used to acidify [urine](#) and facilitate urinary excretion of drugs that are weak bases (e.g., [amphetamine](#)). Although this patient presents with some signs of [amphetamine](#) toxicity, such as dilated pupils, [tachycardia](#), and confusion, some key features such as agitation, [delusions](#), and [hypertension](#) (not [hypotension](#)) are missing. TCA is also a weak base. However, [TCA toxicity](#) causes profound [hypotension](#), resulting in tissue hypoperfusion and [lactic acidosis](#) ([metabolic acidosis](#)). [Ammonium chloride](#) should not be given to patients with [TCA toxicity](#) because it could worsen the [metabolic acidosis](#).

F - Sodium bicarbonate

Explanation But

In patients with [TCA overdose](#), the duration of [QRS complexes](#) correlates with the likelihood of developing [ventricular arrhythmias](#) and [seizures](#) and can, therefore, be used as an indicator of the severity of intoxication.

Explanation Why

TCAs block the fast sodium channels in the [myocardium](#), which decreases cardiac conduction velocity, resulting in prolonged [QRS complexes](#) (≥ 100 ms) and [cardiac arrhythmias](#). In cases of [TCA overdose](#) involving [arrhythmias](#), IV sodium bicarbonate is indicated to alkalinize plasma so that protein binding of TCAs (weak bases) prevent the drug from binding to the fast sodium channels. Additionally, sodium bicarbonate increases extracellular sodium concentration, which makes the remaining fast sodium channels more active.

G - Lorazepam

Explanation Why

[Lorazepam](#), a [benzodiazepine](#), is the treatment of choice for TCA-induced [seizures](#). There is no role of prophylactic administration of [lorazepam](#) in patients with [TCA toxicity](#) who are not having a [seizure](#).

Question # 19

A 32-year-old woman comes to the physician because she feels depressed, has difficulty sleeping, a poor appetite, and low concentration for the past 3 months. During this time, she has also had low energy and lost interest in playing the guitar. During high school, the patient went through similar episodes of low mood and poor sleep. At that time, she would repeatedly engage in binge eating and purging behavior, for which she was referred to therapy. There is no evidence of suicidal ideation. The physician offers to prescribe a medication for her current symptoms. Treatment with which of the following drugs should most be avoided in this patient?

	Answer	Image
A	Duloxetine	
B	Fluoxetine	
C	Trazodone	
D	Bupropion	
E	Mirtazapine	
F	Citalopram	

Hint

This patient shows symptoms of major depressive disorder, with a depressed mood present for longer than 2 weeks, lack of energy, anhedonia (loss of interest), sleep disturbance, loss of appetite, and loss of concentration. However, the patient's comorbidity with bulimia nervosa (binge-purge behavior) increases the risk of seizures with the administration of one particular antidepressant.

Correct Answer

A - Duloxetine

Explanation Why

[Duloxetine](#) is a [serotonin-norepinephrine reuptake inhibitor \(SNRI\)](#) used as a second-line treatment for [major depressive disorder](#). [Duloxetine](#) is contraindicated with concomitant [MAOI](#) use (including up to 2 weeks after discontinuation) because this combination increases the risk of [serotonin syndrome](#). However, [duloxetine](#) is not known to increase the risk of [seizures](#) in [bulimia](#) patients and would be an appropriate treatment option in this patient.

B - Fluoxetine

Explanation Why

[Fluoxetine](#) is a [selective serotonin reuptake inhibitor \(SSRI\)](#) used as a first-line treatment for [major depressive disorder](#). Combinations of [fluoxetine](#) and [MAOIs](#) increase the risk of [serotonin syndrome](#); therefore, concomitant use of these drugs is contraindicated. Moreover, [SSRIs](#) are frequently associated with [sexual dysfunction](#) (e.g., decreased libido, difficulty achieving [erection](#), anorgasmia) and are thus not preferred in patients with pre-existing sexual impairment. Fluoxetine is not, however, associated with [seizure](#) generation in patients with [bulimia nervosa](#) and would be an appropriate treatment option in this patient.

C - Trazodone

Explanation Why

[Trazodone](#) is a [serotonin antagonist and reuptake inhibitor \(SARI\)](#) used in the treatment of [major depressive disorder](#), particularly when associated with [insomnia](#). [Trazodone](#) is contraindicated with concomitant [MAOI](#) use (including up to 2 weeks after discontinuation) because this combination increases the risk of [serotonin syndrome](#). In addition, [trazodone](#) has been associated with [priapism](#) and should, therefore, be used with caution in patients who have [risk factors](#) for [priapism](#) such as patients with [sickle cell disease](#) or leukemia. However, [trazodone](#) is not known to increase the risk of

[seizures](#) in [bulimia](#) patients. While [trazodone](#) would not be the treatment of choice in this patient, she does not have any contraindications to its use.

D - Bupropion

Explanation But

Other drugs that decrease [seizure](#) thresholds are [penicillins](#) (in the presence of [renal failure](#)), [ciprofloxacin](#), [imipenem](#), [isoniazid](#), [theophylline](#), [opioids](#) (e.g., [tramadol](#)), and psychostimulants (e.g., [cocaine](#), [amphetamines](#)).

Explanation Why

[Bupropion](#) is an atypical [antidepressant](#) used as a second-line treatment for [major depressive disorder](#) that is also used in smoking cessation therapy. It selectively inhibits the reuptake of [norepinephrine](#) and [dopamine](#), with a more pronounced effect on the [dopaminergic](#) system. The most severe side effect is a decreased [seizure](#) threshold; therefore, [bupropion](#) is contraindicated in patients with other [seizure risk factors](#) (e.g., anorexia/[bulimia](#), [epilepsy](#), [alcohol withdrawal](#)).

E - Mirtazapine

Explanation Why

[Mirtazapine](#) is an atypical [antidepressant](#) used as a second-line treatment for [major depressive disorder](#). [Mirtazapine](#) is contraindicated with concomitant [MAOI](#) use (including up to 2 weeks after discontinuation) because this combination increases the risk of [serotonin syndrome](#). Furthermore, a side effect of [mirtazapine](#) is increased appetite and weight gain, which may not always be desirable in [bulimia](#) patients as it can decrease [drug compliance](#). However, while [mirtazapine](#) would not be the treatment of choice in this patient, a history of [bulimia nervosa](#) is not a contraindication to its use.

F - Citalopram

Explanation Why

[Citalopram](#) is a [selective serotonin reuptake inhibitor \(SSRI\)](#) used as a first-line treatment for [major depressive disorder](#). [Citalopram](#) is contraindicated with concomitant [MAOI](#) use (including up to 2 weeks after discontinuation) because this combination increases the risk of [serotonin syndrome](#). However, [citalopram](#) is not known to increase the risk of [seizures](#) in [bulimia](#) patients and would be an appropriate treatment option in this patient.

Question # 20

A 27-year-old woman comes to the physician because of poor sleep for the past 8 months. She has been gradually sleeping less because of difficulty initiating sleep at night. She does not have trouble maintaining sleep. On average, she sleeps 4–5 hours each night. She feels tired throughout the day but does not take naps. She was recently diagnosed with social anxiety disorder and attends weekly psychotherapy sessions. Mental status examination shows an anxious mood. The patient asks for a sleeping aid but does not want to feel drowsy in the morning because she has to drive her daughter to kindergarten. Short-term treatment with which of the following drugs is the most appropriate pharmacotherapy for this patient's symptoms?

	Answer	Image
A	Doxepin	
B	Triazolam	
C	Flurazepam	
D	Trazodone	
E	Suvorexant	
F	Phenobarbital	

Hint

This patient has difficulty initiating sleep at night but does not have difficulty maintaining sleep, which is characteristic of sleep onset insomnia. This type of insomnia is treated with a short-acting drug.

Correct Answer

A - Doxepin

Explanation Why

[Doxepin](#) is a long-acting [tricyclic antidepressant](#) with a potent [antihistamine](#) effect that improves sleep maintenance. Although it could help to extend this patient's sleep time, it would not affect the duration to sleep onset, and it has a long-acting effect thus; therefore, it would not be the best treatment option for this patient.

B - Triazolam

Explanation But

Alternative therapeutic options for sleep-onset [insomnia](#) with equal effectiveness but less addictive potential than [benzodiazepines](#) include nonbenzodiazepine hypnotics such as [zolpidem](#) and [zaleplon](#).

Explanation Why

[Triazolam](#) is a short-acting [benzodiazepine](#) ([half-life](#) approx. 2–5 hours) used for the short-term treatment of sleep onset [insomnia](#) and as a second-line therapy for [social anxiety disorder](#). It facilitates the [GABA](#)-mediated inhibition of neuronal [depolarization](#) (through increased frequency of Cl^- channel opening) and improves sleep quality by reducing the time to sleep onset (latency) and reducing phase one of non-REM sleep (light sleep). Adverse effects include [headache](#), [amnesia](#), and most importantly the addictive potential.

C - Flurazepam

Explanation Why

Flurazepam is a [benzodiazepine](#) used to treat patients with sleep maintenance impairment. Although an appropriate option for this patient's [insomnia](#), it has a long-acting effect ([half-life](#) approx. 40–110

hours) associated with sleepiness and impairment of psychomotor and cognitive functions that this patient explicitly wants to avoid. Therefore, flurazepam would not be the appropriate therapy for this patient with morning responsibilities.

D - Trazodone

Explanation Why

[Trazodone](#) is an [atypical antidepressant](#) that is used for the long-term treatment of major [depressive disorder](#). It also has a sedative effect that is useful in the treatment of [insomnia](#). However, it can potentially cause daytime drowsiness, which this patient explicitly wants to avoid. Therefore, it is not the appropriate short-term treatment for this patient's symptoms.

E - Suvorexant

Explanation Why

[Suvorexant](#) is a selective [orexin](#) receptor antagonist and intermediate-acting hypnotic used for the treatment of [insomnia](#). It improves the time to sleep onset as well as sleep maintenance. However, it causes next day sleepiness and impairs driving performance, which would not be appropriate for this patient driving her daughter in the morning.

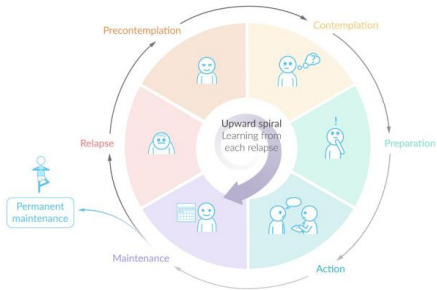
F - Phenobarbital

Explanation Why

[Phenobarbital](#) is an [anticonvulsant drug](#) with sleep-inducing properties of the [barbiturate](#) family that decreases [sleep latency](#) and prolongs sleep duration. However, because of the extensive side effects profile (e.g., sedation, [dizziness](#), nystagmus, and [ataxia](#)) and significant addictive potential, [barbiturates](#) are not recommended in the treatment of [insomnia](#).

Question # 21

A 46-year-old man comes to the physician for a follow-up evaluation one week after being discharged from the hospital for acute pancreatitis and alcohol withdrawal. He drinks 8 to 10 beers daily. When the physician asks him about his alcohol use, the patient says, "This is the second time in a year that I have experienced such severe belly pain because of my pancreas. I realize that it really could be happening because of the amount of alcohol I am drinking. However, I don't think I have the willpower to cut down." This patient is most likely in which of the following stages of behavioral change?

	Answer	Image
A	Maintenance	
B	Precontemplation	
C	Preparation	
D	Action	
E	Contemplation	

Hint

This patient has realized that there is a problem; now he needs to be willing to take the next steps to make a change.

Correct Answer

A - Maintenance

Explanation Why

According to the [transtheoretical model](#), “maintenance” describes a stage in which patients are already in their strategic course of change. They are striving to sustain any gains made thus far. In this stage, patients with [alcohol abuse](#) work to maintain sobriety and prevent relapse. This patient, however, has not yet changed his behavior.

B - Precontemplation

Explanation Why

According to the [transtheoretical model](#), “precontemplation” describes a stage in which an individual has not yet acknowledged the harm in behaviors such as [substance abuse](#) and therefore has no intention of change in the foreseeable future. This patient has, however, already realized that there is a problem with his excessive alcohol use.

C - Preparation

Explanation Why

According to the [transtheoretical model](#), “preparation” describes a stage in which individuals prepare to change their behavior. In a patient with a [substance abuse](#) disorder, this phase typically entails making choices about supportive treatments, as well as a self-assessment of the patient's own perceived capabilities to change. However, this patient expresses that he does not feel capable of cutting down on his drinking and is not yet ready to make any changes.

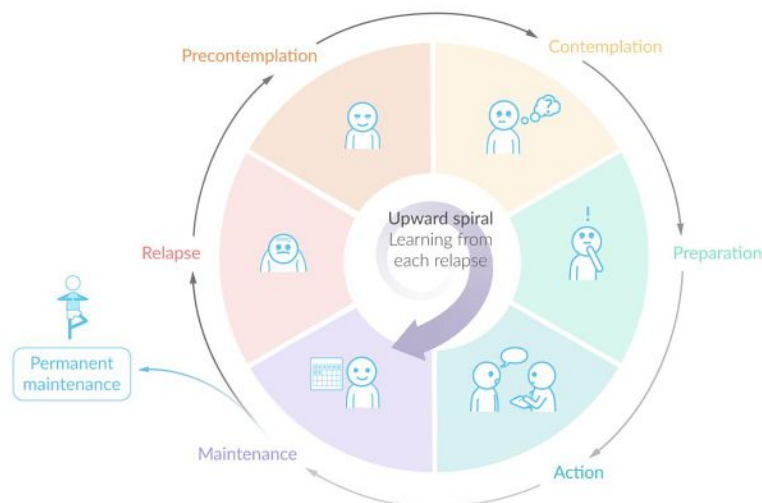
D - Action

Explanation Why

According to the [transtheoretical model](#), “action” describes a stage in which patients have chosen a strategy or treatment course to change their addictive behavior, and they begin to pursue it. This patient says he lacks the willpower to make behavioral changes at this point.

E - Contemplation

Image



Explanation Why

According to the [transtheoretical model](#), “contemplation” describes a stage of behavioral change in which the patient acknowledges that there is a problem but has still not committed to making a change. In this phase, patients with [substance abuse](#), such as this patient, perceive that their addiction may be a cause for concern or a reason to change. They might also consider the possibility of a

change. However, they remain ambivalent and continue their use because they are not ready to make concrete preparations to change.

Question # 22

A previously healthy 32-year-old man comes to the physician because of a 2-month history of fatigue and daytime sleepiness. He works as an accountant and cannot concentrate at work anymore. He also has depressed mood and no longer takes pleasure in activities he used to enjoy, such as playing tennis with his friends. He has decreased appetite and has had a 4-kg (8.8-lb) weight loss of over the past 2 months. He does not have suicidal ideation. He is diagnosed with major depressive disorder and treatment with paroxetine is begun. The patient is at greatest risk for which of the following adverse effects?

	Answer	Image
A	Urinary retention	
B	Hypothyroidism	
C	Serotonin syndrome	
D	Increased suicidality	
E	Decreased libido	
F	Hypertensive crisis	
G	Postural hypotension	
H	Priapism	

Hint

This patient meets criteria for major depressive disorder, as evidenced by his depressed mood, anhedonia, fatigue, poor concentration, sleep disturbances, decreased appetite, and weight loss. Paroxetine belongs to the class of selective serotonin reuptake inhibitors (SSRI), the first-line treatment for major depressive disorder.

Correct Answer

A - Urinary retention

Explanation Why

[Tricyclic antidepressants](#) have [anticholinergic effects](#), which can induce [tachycardia](#), [arrhythmia](#), intestinal [ileus](#), and a decrease in [bladder detrusor muscle](#) contraction that can lead to [urinary retention](#). However, [anticholinergic effects](#) are not a common side effect of [SSRIs](#) like [paroxetine](#).

B - Hypothyroidism

Explanation Why

[Thyroid](#) dysfunction, including [hyperthyroidism](#) and [hypothyroidism](#), is a potential side effect of [lithium](#). However, [thyroid](#) abnormalities are rarely seen in patients taking [paroxetine](#).

C - Serotonin syndrome

Explanation Why

[Serotonin syndrome](#) is a very rare side effect of monotherapy with [SSRIs](#). Instead, this syndrome is more likely to occur with simultaneous use of two or more serotonergic medications (e.g., [MAO inhibitor](#) + [SSRI](#)). [Serotonin syndrome](#) can also occur when switching the medication regimen from one serotonergic drug class to another serotonergic drug class (e.g., from [MAO inhibitor](#) to [SSRI](#)). For that reason, the first drug should be tapered or even stopped for some days before introducing the new agent.

D - Increased suicidality

Explanation Why

While some studies have shown that [antidepressants](#) can increase the risk of [suicide](#) in patients under 24 years of age with pre-existing [suicidal ideation](#) in the first weeks of treatment, there is no evidence that [SSRIs](#) or [tricyclic antidepressants](#) increase suicidality in nonsuicidal individuals of this patient's age group. This rather rare side effect is assumed to be caused by the sequential onset of these drug's effects: While [SSRIs](#) can increase a patient's motivation to initiate and perform self-directed activities (including self-harming behavior) already shortly after initiating treatment, the onset of the [mood](#)-lifting effects can be delayed by 2–4 weeks. Since this patient is 32 years old and is not suicidal, another side effect should be considered.

E - Decreased libido

Explanation Why

Up to half of patients taking [SSRIs](#) experience [sexual dysfunction](#), including decreased libido, delayed [ejaculation](#), or anorgasmia. In addition, [SSRIs](#) may impair male [fertility](#). [SSRI](#)-induced [sexual dysfunction](#) can remit spontaneously within 2–8 weeks. However, if [sexual dysfunction](#) persists, decreasing the [SSRI](#) dose or switching to a non-[SSRI antidepressant](#) (e.g., [bupropion](#), [mirtazapine](#)) may be indicated.

F - Hypertensive crisis

Explanation Why

[Hypertensive crisis](#) is a potential side effect of [monoamine oxidase inhibitors](#) ([MAO inhibitors](#)) in combination with the consumption of [tyramine](#)-containing products (e.g., aged cheese, smoked meat, wine). Since [tyramine](#) is metabolized by [MAO](#), the inhibition of [MAO](#) can lead to accumulation of [tyramine](#). Excess [tyramine](#) can induce elevated [norepinephrine](#) release. This leads to the activation of alpha-1 [adrenergic receptors](#), causing vasoconstriction and subsequent [hypertension](#). [Hypertensive crisis](#) is not an expected adverse effect of treatment with [SSRIs](#).

G - Postural hypotension

Explanation Why

[Postural hypotension](#) is a potential side effect of [tricyclic antidepressants](#) (TCA), but not a common side effect of [SSRIs](#). TCAs block alpha-1-receptors on the blood vessels, which can cause [vasodilation](#), [hypotension](#), and impaired [baroreflexes](#).

H - Priapism

Explanation Why

[Priapism](#) is a potential side effect of [serotonin antagonist and reuptake inhibitors](#) (SARIs) like [trazodone](#). It is assumed that blocking of [alpha adrenergic receptors](#) on [smooth muscle cells](#) in penile [arteries](#) leads to prolonged [vasodilation](#) and thus prolonged blood flow into the [penis](#). While [priapism](#) can sometimes occur as a side effect of [paroxetine](#), it is not nearly as common as another side effect of [SSRIs](#).

Question # 23

A 29-year-old man comes to the physician for worsening restlessness over the past several days. Three weeks ago, he was started on trifluoperazine for the treatment of schizophrenia. He reports that, since then, he has often felt compelled to pace around his house and is unable to sit or stand still. He is switched to an alternative antipsychotic medication. Four weeks later, the patient reports improvement of his symptoms but says that he has developed increased drowsiness, blurred vision, and dry mouth. The patient was most likely switched to which of the following drugs?

	Answer	Image
A	Metoclopramide	
B	Chlorpromazine	
C	Trimipramine	
D	Fluphenazine	
E	Haloperidol	

Hint

The patient was initially started on a high-potency typical antipsychotic (trifluoperazine) and developed akathisia, an extrapyramidal symptom. He was then switched to a drug that is associated with fewer extrapyramidal symptoms but has more antihistaminergic (drowsiness) and anticholinergic (blurred vision, and dry mouth) side effects, most likely a low-potency typical antipsychotic.

Correct Answer

A - Metoclopramide

Explanation Why

[Metoclopramide](#) is a [D2 receptor](#) antagonist that is used in the treatment of [gastroesophageal reflux disease](#), gastroparesis, and nausea/vomiting, but it is not used as an [antipsychotic](#). Its side effects include [diarrhea](#), [extrapyramidal symptoms](#), and [neuroleptic malignant syndrome](#).

B - Chlorpromazine

Explanation But

[Akathisia](#) is the most common [extrapyramidal symptom](#). If feasible, the first intervention should be a careful reduction of the [antipsychotic](#) dose. [Beta blockers](#) such as [propranolol](#) are the first-line medical treatment.

Explanation Why

[Chlorpromazine](#) is a [low-potency typical antipsychotic](#) that blocks [D2 receptors](#). [Extrapyramidal symptoms](#) are less commonly seen with [chlorpromazine](#) than with [high-potency typical antipsychotics](#). However, the drug is associated with [anticholinergic](#) and [antihistaminergic](#) side effects, as observed in this patient. Additional [α-1 receptor](#) blockade effects may cause [orthostatic hypotension](#).

C - Trimipramine

Explanation Why

[Trimipramine](#) is a [tricyclic antidepressant](#) agent with [anticholinergic](#) and [antihistaminergic](#) effects. Even though it has a weak anti-[dopaminergic](#) effect and a molecular structure similar to that of [neuroleptics](#), it is not used in the treatment of [schizophrenia](#).

D - Fluphenazine

Explanation Why

[Fluphenazine](#) is a high-[potency typical antipsychotic drug](#) that blocks [D2 receptors](#). Unlike the drug given to this patient, [fluphenazine](#) has low [anticholinergic](#) and [antihistaminergic](#) activity and carries a higher risk of development of [extrapyramidal symptoms](#).

E - Haloperidol

Explanation Why

[Haloperidol](#) is a high-[potency typical antipsychotic drug](#) that blocks [D2 receptors](#). Unlike the drug given to this patient, [haloperidol](#) has low [anticholinergic](#) and [antihistaminergic](#) activity and carries a higher risk of development of [extrapyramidal symptoms](#).

Question # 24

Two weeks after hospitalization for acute psychosis, a 27-year-old woman with a history of paranoid schizophrenia comes to the physician because of difficulty walking and shaking movements of her hands. Current medications include fluphenazine, which was started during her recent hospitalization. Examination shows a shuffling gait, rigidity in the upper extremities, and a low-amplitude tremor of her hands that improves with activity. Mental status examination shows no abnormalities. Treatment with a drug with which of the following mechanisms of action is most likely to provide relief for this patient's current symptoms?

	Answer	Image
A	β -adrenergic antagonist	
B	GABA agonist	
C	Dopamine antagonist	
D	Histamine antagonist	
E	Muscarinic antagonist	

Hint

This patient presents with symptoms of Parkinson disease (bradykinesia, muscle rigidity, resting tremor) after several weeks of treatment with high-potency typical antipsychotics. This suggests drug-induced pseudoparkinsonism.

Correct Answer

A - β -adrenergic antagonist

Explanation But

[\$\beta\$ -adrenergic antagonists](#) are also used as first-line treatment for [akathisia](#), the most common form of [extrapyramidal syndrome](#) (EPS) caused by high-[potency typical antipsychotic](#) use.

Explanation Why

[\$\beta\$ -adrenergic antagonists](#) such as [propranolol](#) are the preferred treatment for [essential tremor](#). Unlike this patient's [tremor](#), [essential tremor](#) typically manifests as a bilateral [tremor](#) of the hands that worsens with voluntary movements but resolves at rest. Moreover, essential [tremors](#) are sporadic or hereditary in nature and are not associated with consumption of [antipsychotic](#) drugs.

B - GABA agonist

Explanation But

[Benzodiazepines](#) are also used as alternative agents in the treatment of [akathisia](#).

Explanation Why

[GABA agonists](#), such as [benzodiazepines](#), are not indicated for drug-induced [pseudoparkinsonism](#) but are used as a second-line treatment for drug-induced [acute dystonia](#) (second-line due to its [anticholinergic](#) properties). This [extrapyramidal symptom](#) (EPS) manifests within hours to days of [antipsychotic](#) treatment with painful and lasting muscle spasms of the [eye](#), [tongue](#), neck ([torticollis](#)), and [back muscles](#). After acute treatment of the [dystonia](#), the offending [antipsychotic drug](#) should be replaced with an [antipsychotic](#) that has a lower risk for EPS.

C - Dopamine antagonist

Explanation Why

Immediate discontinuation of the offending [antipsychotic drug](#) and replacement with the weak [dopamine antagonist clozapine](#) is recommended in patients who develop signs of [tardive dyskinesia](#). This [extrapyramidal symptom](#) (EPS) involves involuntary [choreoathetoid movements](#) of the mouth (repetitive chewing and lip-smacking), face, and extremities, which develop after months to years of treatment. Although switching to an [atypical antipsychotic](#) drug generally reduces the risk of EPS progression, another drug is more likely to provide immediate relief for this patient's [pseudoparkinsonism](#).

D - Histamine antagonist

Explanation Why

The [histamine antagonist diphenhydramine](#) is not indicated for drug-induced [pseudoparkinsonism](#) but is used as a second-line treatment for drug-induced [acute dystonia](#) (second-line due to its [anticholinergic](#) properties). [Acute dystonia](#) manifests within hours to days of [antipsychotic](#) treatment with painful and lasting spasms of the [eye](#), [tongue](#), neck ([torticollis](#)), and [back muscles](#). After acute treatment of the [dystonia](#), the offending [antipsychotic drug](#) should be replaced with an [antipsychotic](#) with a lower risk of [extrapyramidal symptoms](#).

E - Muscarinic antagonist

Explanation Why

[Antipsychotic](#)-induced [pseudoparkinsonism](#) is generally treated with dose reduction or discontinuation of the offending drug. However, if this does not suffice or is not feasible due to active psychotic illness, pharmaceutical treatment should be initiated to provide symptomatic relief. Centrally-acting [muscarinic antagonists](#), e.g., [benztropine](#) and [trihexyphenidyl](#), are the preferred treatment for [pseudoparkinsonism](#) associated with [antipsychotic](#) drugs in most patients. Elderly patients, however, should be treated with [amantadine](#) to avoid the potential [anticholinergic side effects](#) of [muscarinic antagonists](#) (e.g., dry mouth, [constipation](#), [urinary retention](#), cognitive

impairments, [delirium](#)).

Question # 25

A 42-year-old woman is brought to the emergency department because of a severe, throbbing, occipital headache for 2 hours. She also reports nausea, photophobia, and chest tightness. The symptoms developed shortly after she had a snack consisting of salami and some dried fruits at a wine tasting event. The patient has recurrent migraine headaches and depression, for which she takes medication daily. She is mildly distressed, diaphoretic, and her face is flushed. Her temperature is 37.2°C (98.9 F), pulse is 88/min, respirations are 19/min, and blood pressure is 190/128 mmHg. Deep-tendon reflexes are 2+ bilaterally. This patient's symptoms are most likely caused by a side effect of which of the following medications?

	Answer	Image
A	Valproic acid	
B	Paroxetine	
C	Verapamil	
D	Naproxen	
E	Tranlycypromine	
F	Almotriptan	
G	Topiramate	
H	Doxepin	

Hint

Ingestion of tyramine-rich food (e.g., cured meats, dried fruits, red wine) in conjunction with this medication can lead to hypertensive crisis.

Correct Answer

A - Valproic acid

Explanation Why

[Valproic acid](#), an [anticonvulsant](#), is used in the treatment of [epilepsy](#) and [bipolar disorder](#), but can also be used for [migraine headache](#) prophylaxis. Common side effects include GI discomfort, weight gain, and sedation but not [hypertensive crisis](#), as seen in this patient.

B - Paroxetine

Explanation Why

[Paroxetine](#), an [SSRI](#), is used as first-line treatment for [major depressive disorder](#). Patients taking [SSRIs](#) may develop [serotonin syndrome](#), which can also present with [hypertension](#), [diaphoresis](#), and GI disturbances. However, [serotonin syndrome](#) is usually characterized by altered mental state, hyperthermia, [hyperreflexia](#), and myoclonus, none of which are seen in this patient.

C - Verapamil

Explanation Why

[Verapamil](#), a [calcium-channel blocker](#), can be used for [migraine headache](#) prophylaxis. While it could explain the flushing and [diaphoresis](#), it typically also causes [hypotension](#), making it an unlikely source of this patient's symptoms.

D - Naproxen

Explanation Why

[Naproxen](#), an [NSAID](#), can be used as an abortive therapy for mild to moderate [migraine headache](#). Common side effects include GI disturbances and renal impairment but not [hypertensive crisis](#).

E - Tranylcypromine

Explanation Why

[Tranylcypromine](#), a [monoamine oxidase inhibitor \(MAOI\)](#), is typically reserved for treatment-resistant or atypical [major depressive disorder](#) given its severe side effect profile and numerous drug interactions. [Monoamine oxidase](#) breaks down excess [tyramine](#) in the body. Since [MAOIs](#) block this enzyme, the consumption of [tyramine](#)-rich foods (e.g., red wine, certain nuts, aged cheeses or meats, dried fruits) leads to an accumulation of [tyramine](#). This, in turn, leads to a release of [norepinephrine](#) that can provoke a [hypertensive crisis](#), as seen in this patient.

F - Almotriptan

Explanation Why

[Almotriptan](#), a 5-HT₁ receptor [agonist](#), is typically used as an abortive therapy for [migraine headache](#). It can cause vasoconstriction and transient increase in blood pressure but would be unlikely to cause [hypertensive crisis](#), as seen with this patient.

G - Topiramate

Explanation Why

[Topiramate](#), an [anticonvulsant](#), can be used as a prophylactic treatment for [migraine headache](#). Its side effect profile includes [somnolence](#), [glaucoma](#), weight loss, and [kidney stones](#) but not [hypertensive crisis](#), as seen in this patient, making this an unlikely source of the symptoms.

H - Doxepin

Explanation Why

[Doxepin](#), a [tricyclic antidepressant](#), can be used for the treatment of depression and [migraine](#) prophylaxis. Its side effects include [anticholinergic effects](#) ([tachycardia](#), [hypotension](#)), sedation, and [delirium](#). Furthermore, it is associated with increased risk of developing [serotonin syndrome](#), which can present with [hypertension](#), [diaphoresis](#), and GI disturbances. However, [serotonin syndrome](#) is usually characterized by altered mental status, hyperthermia, [hyperreflexia](#), and myoclonus, none of which are seen in this patient.

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Question # 26

A 36-year-old woman with schizophrenia comes to the office for a follow-up appointment. She has been hospitalized 4 times in the past year, and she has failed to respond to multiple trials of antipsychotic medications. Six weeks ago, she was brought to the emergency department by her husband because of a bizarre behavior, paranoid delusions, and hearing voices that others did not hear. She was started on a new medication, and her symptoms have improved. Laboratory studies show:

Hemoglobin	13.8 g/dL
Leukocyte count	1,200/mm ³
Segmented neutrophils	6%
Eosinophils	0%
Lymphocytes	92%
Monocytes	2%
Platelet count	245,000/mm ³

This patient was most likely started on which of the following medications?

	Answer	Image
A	Fluphenazine	
B	Risperidone	
C	Olanzapine	

	Answer	Image
D	Quetiapine	
E	Promethazine	
F	Chlorpromazine	
G	Lithium	
H	Clozapine	

Hint

This patient has treatment-resistant schizophrenia (failure to respond to multiple trials of antipsychotic medications). She was most likely started on the gold standard antipsychotic for treatment-resistant schizophrenia. However, she now has agranulocytosis, which is a known side effect of this medication.

Correct Answer

A - Fluphenazine

Explanation Why

[Fluphenazine](#) is a high-[potency antipsychotic](#) that can cause extrapyramidal and [anticholinergic](#) adverse effects, neither of which are seen in this patient. This patient's [agranulocytosis](#) is not an expected adverse effect.

B - Risperidone

Explanation Why

[Risperidone](#) is an [atypical antipsychotic](#) that can cause [hyperprolactinemia](#), which may lead to [gynecomastia](#). This patient's [agranulocytosis](#) is not a typical adverse effect.

C - Olanzapine

Explanation Why

[Olanzapine](#) is an [atypical antipsychotic](#) that is commonly used as first-line treatment for [schizophrenia](#). Adverse effects include weight gain, [hyperglycemia](#), and [orthostatic hypotension](#), but it does not typically cause [agranulocytosis](#). Furthermore, it is rarely used for refractory [schizophrenia](#), making it an unlikely cause of this patient's symptoms.

D - Quetiapine

Explanation Why

[Quetiapine](#) is an [atypical antipsychotic](#) that can cause sedation, [metabolic syndrome](#), [hyperglycemia](#), and weight gain. This patient's [agranulocytosis](#) is not a typical adverse effect.

E - Promethazine

Explanation Why

[Promethazine](#) is a low-[potency antipsychotic](#) that can cause extrapyramidal and [anticholinergic](#) adverse effects, neither of which are seen in this patient. This patient's [agranulocytosis](#) is not an expected adverse effect.

F - Chlorpromazine

Explanation Why

[Chlorpromazine](#) is a medium-[potency antipsychotic](#) used for [schizophrenia](#) in addition to [bipolar disorder](#), [attention deficit hyperactivity disorder](#), and nausea. It can cause extrapyramidal and [anticholinergic](#) symptoms, but this patient's [agranulocytosis](#) is not a typical adverse effect.

G - Lithium

Explanation Why

[Lithium](#) is used in the treatment of [bipolar disorder](#) and can cause [hypothyroidism](#), [nephrogenic diabetes insipidus](#), and fine [tremors](#), none of which are seen in this patient. Furthermore, [lithium](#) is

not used in the management of treatment-resistant [schizophrenia](#) and would not explain this patient's [agranulocytosis](#).

H - Clozapine

Explanation Why

[Clozapine](#) is used primarily for [schizophrenia](#) resistant to first-line pharmacological therapy. While it is highly effective in the treatment of [schizophrenia](#), it has serious adverse effects, which can include the life-threatening [agranulocytosis](#) seen in this patient. About 1–2% of all patients who begin taking [clozapine](#) eventually develop [agranulocytosis](#) (usually in the first months of treatment), though this risk falls substantially after the first year. The most common symptoms of [agranulocytosis](#) are oral ulcerations, [fever](#), malaise, and increased susceptibility to infections such as [pneumonia](#).

Question # 27

A 21-year-old woman comes to the physician because of a 4-month history of fatigue. She admits to binge eating several times per month, after which she usually induces vomiting for compensation. She exercises daily in an effort to lose weight. She is 168 cm (5 ft 6 in) tall and weighs 60 kg (132 lb); BMI is 21.3 kg/m². Physical examination shows calluses on the knuckles and bilateral parotid gland enlargement. Oropharyngeal examination shows eroded dental enamel and decalcified teeth. Which of the following is the most appropriate pharmacotherapy for this patient's condition?

	Answer	Image
A	Orlistat	
B	Mirtazapine	
C	Olanzapine	
D	Buspirone	
E	Venlafaxine	
F	Fluoxetine	

Hint

A history of binge eating and self-induced vomiting in a patient with a normal BMI is consistent with a diagnosis of bulimia nervosa. Calluses on the knuckles, bilateral parotid gland enlargement, and poor dental status support the diagnosis.

Correct Answer

A - Orlistat

Explanation Why

[Orlistat](#) is a [pancreatic](#) and [gastric lipase](#) inhibitor that reduces the breakdown and absorption of fat in the [gastrointestinal tract](#). It is commonly used to induce weight loss and may be abused by patients with [bulimia nervosa](#) to lose weight. It is not used for the treatment of [bulimia nervosa](#).

B - Mirtazapine

Explanation Why

[Mirtazapine](#) is used in [major depressive disorder](#). Although this patient has fatigue, she does not have other signs of depression such as [anhedonia](#), [insomnia](#), loss of interest, and [suicidal ideation](#). [Mirtazapine](#) is also counterproductive in [bulimia nervosa](#) because it increases appetite and can cause significant weight gain, which could lead to further dietary restriction, bingeing, and purging.

C - Olanzapine

Explanation Why

[Olanzapine](#) can be used in treatment of refractory [anorexia nervosa](#) (AN), which may also present with physical signs of purging (e.g., bilateral [parotid gland](#) enlargement due to repeated vomiting). However, this patient's [BMI](#) is $> 18.5 \text{ kg/m}^2$, ruling out [anorexia nervosa](#). Moreover, [olanzapine](#) could be counterproductive in this patient because it increases appetite and can cause significant weight gain, which could lead to further dietary restriction, bingeing, and purging.

D - Buspirone

Explanation Why

[Buspirone](#) is used in [generalized anxiety disorder](#) or [social anxiety disorder](#). However, this patient's history and physical findings are not consistent with [anxiety disorder](#). Although some studies have found [buspirone](#) to be effective in decreasing bingeing and vomiting in patients with [bulimia nervosa](#), it is not commonly used for this indication.

E - Venlafaxine

Explanation Why

[Venlafaxine](#) is a [selective serotonin-norepinephrine reuptake inhibitor](#) commonly used to treat depression and [anxiety disorders](#). It is not approved for the treatment of [bulimia nervosa](#). Also, [venlafaxine](#) is associated with weight gain, which could lead to further dietary restriction, bingeing, and purging in this patient.

F - Fluoxetine

Explanation Why

[Fluoxetine](#) is the first-line pharmacologic treatment for [bulimia nervosa](#) and should be administered to this patient. [Fluoxetine](#) has been shown to reduce the frequency of bingeing (i.e., rapid consumption of a large amount of food) and purging, and is typically prescribed for at least 6–12 months beyond treatment response. Side effects include [sexual dysfunction](#), [serotonin syndrome](#), and [suicidal ideation](#) during the first few months of treatment, particularly in young people. Behavioral changes should be carefully monitored.

Question # 28

A 32-year-old man comes to the physician because of generalized fatigue for the past 4 months. He also has difficulty sleeping and concentrating. He says he does not enjoy his hobbies anymore and has stopped attending family events. Mental status examination shows psychomotor retardation and a flat affect along with some evidence of suicidal ideation. His speech is slow in rate and monotone in rhythm. Treatment with fluoxetine is initiated. One month later, he reports significant improvement in his motivation and mood but also delayed ejaculation and occasional anorgasmia. The physician decides to replace his current medication with another agent. It is most appropriate to switch the patient to which of the following drugs?

	Answer	Image
A	Venlafaxine	
B	Citalopram	
C	Tranlycypromine	
D	Trazodone	
E	Bupropion	

Hint

This patient with fatigue, sleep disturbance, anhedonia, flat affect, suicidal ideation, and psychomotor retardation has major depressive disorder (MDD). Selective serotonin reuptake inhibitors (SSRIs), such as fluoxetine, are the first-line therapy for MDD, but sexual disorders (anorgasmia, erectile or ejaculatory dysfunction, decreased libido) are a known side effect of this group of drugs.

Correct Answer

A - Venlafaxine

Explanation Why

[Venlafaxine](#) is a selective [serotonin-norepinephrine](#) reuptake inhibitor that is used for the treatment of [major depressive disorder](#) and [generalized anxiety disorder](#). It has a similar side effect profile as [SSRIs](#), including [sexual dysfunction](#), nausea, dry mouth, [headache](#), and [serotonin syndrome](#) (when used with other serotonergic drugs). Hence, it is not the right drug choice for this patient.

B - Citalopram

Explanation Why

[Citalopram](#) is, like [fluoxetine](#), an [SSRI](#) that may, therefore, cause [sexual dysfunction](#). Hence, it is not the right choice of drug for this patient. Other side effects of [SSRIs](#) such as [citalopram](#) include nausea, [SIADH](#), and [serotonin syndrome](#) (when used with other serotonergic drugs).

C - Tranylcypromine

Explanation Why

[Monoamine oxidase inhibitors](#) ([MAOI](#)) such as [tranylcypromine](#) can be used for treatment-refractory [depression with atypical features](#) (e.g., [mood](#) reactivity, [hypersomnia](#), [hyperphagia](#), leaden paralysis, interpersonal rejection sensitivity). [MAOIs](#) are not used as first- or even second-line drugs to treat [MDD](#) without atypical features due to side effects such as drug interactions and [hypertensive crisis](#) following ingestion of [tyramine](#)-rich food (e.g., aged cheese).

D - Trazodone

Explanation Why

[Trazodone](#) is a 5-HT₂ [serotonin](#) antagonist that is sometimes used as an adjunct to other [antidepressants](#) for the treatment of [insomnia](#) associated with depression. However, it is not indicated as monotherapy for [major depressive disorder](#) and therefore is not the right drug choice for this patient. [Trazodone](#) is not associated with [sexual dysfunction](#), but [priapism](#), [orthostatic hypotension](#), and sedation are known side effects.

E - Bupropion

Explanation But

[Bupropion](#) is also used to treat tobacco dependence.

Explanation Why

[Bupropion](#), which inhibits the reuptake of [norepinephrine](#) and [dopamine](#), is an [atypical antidepressant](#) without sexual side effects and therefore a viable alternative for patients with [MDD](#), who experience [sexual dysfunction](#) due to [SSRIs](#). Side effects of [bupropion](#) include reduction of the [seizure](#) threshold, [tachycardia](#), [insomnia](#), and [headache](#). [Mirtazapine](#), which increases the release of [norepinephrine](#) and [serotonin](#) by blocking the [α₂ adrenergic receptor](#), is another [atypical antidepressant](#) drug that does not cause [sexual dysfunction](#) and can be used in patients with [insomnia](#) or anorexia.

Question # 29

A 33-year-old woman is brought to the physician by her husband because of persistent sadness for the past 2 months. During this period, she also has had difficulty sleeping and an increased appetite. She had similar episodes that occurred 2 years ago and 9 months ago that each lasted for 4 months. Between these episodes, she reported feeling very energetic and rested after 3 hours of sleep. She often went for long periods of time without eating. She works as a stock market trader and received a promotion 5 months ago. She regularly attends yoga classes on the weekends with her friends. On mental status examination, she has a blunted affect. She denies suicidal thoughts and illicit drug use. Which of the following is the most likely diagnosis?

	Answer	Image
A	Major depressive disorder with seasonal pattern	
B	Bipolar II disorder	
C	Persistent depressive disorder	
D	Cyclothymic disorder	
E	Bipolar disorder with rapid cycling	
F	Major depressive disorder with atypical features	

Hint

This patient's depressive and hypomanic symptoms have not resulted in marked impairment in social or occupational functioning or required hospitalization.

Correct Answer

A - Major depressive disorder with seasonal pattern

Explanation Why

[Major depressive disorder with seasonal pattern](#) is characterized by ≥ 2 major depressive episodes over ≥ 2 years that are associated with a particular time of the year (e.g., the winter season). However, this patient's depressive symptoms do not fulfill the diagnostic criteria for a [major depressive episode](#) (i.e., ≥ 5 [SIGECAPS](#) symptoms), and they are not associated with a particular season. In addition, the [hypomanic](#) symptoms seen in this patient are uncharacteristic of [major depressive disorder with seasonal pattern](#).

B - Bipolar II disorder

Explanation Why

[Bipolar II disorder](#) is characterized by ≥ 1 [hypomanic](#) episode and ≥ 1 major depressive episode. Although this patient has both [hypomanic](#) and depressive symptoms, her symptoms do not fulfill the diagnostic criteria for either a [hypomanic episode](#) (i.e., ≥ 3 [hypomanic](#) symptoms) or a [major depressive episode](#) (i.e., ≥ 5 [SIGECAPS](#) symptoms). Moreover, the chronicity of her symptoms indicates a different diagnosis.

C - Persistent depressive disorder

Explanation Why

[Persistent depressive disorder](#) ([dysthymia](#)) is a [mood disorder](#) characterized by depressed mood in addition to ≥ 2 [SIGECAPS](#) symptoms. These symptoms must be present during most of the day for the majority of the time over ≥ 2 years and cannot be attributable to [substance use](#), [bipolar disorder](#), [psychotic disorders](#), or another medical condition. To meet the diagnostic criteria for [persistent depressive disorder](#), there must be ≤ 2 consecutive months of a symptom-free period. This patient has had > 2 month periods without depressive symptoms. In addition, the [hypomanic](#) symptoms seen in this patient are uncharacteristic of [persistent depressive disorder](#).

D - Cyclothymic disorder

Explanation Why

[Cyclothymic disorder](#) ([cyclothymia](#)) is characterized by distinct periods of depressive symptoms and distinct periods of [hypomanic](#) symptoms for ≥ 2 years (or ≥ 1 year for children). To meet the diagnostic criteria for [cyclothymic disorder](#), there must be ≤ 2 consecutive months of a symptom-free period, and symptoms should not meet the diagnostic criteria for either a [hypomanic episode](#) (i.e., ≥ 3 [hypomanic](#) symptoms) or a [major depressive episode](#) (i.e., ≥ 5 [SIGECAPS](#) symptoms).

E - Bipolar disorder with rapid cycling

Explanation Why

[Bipolar disorder with rapid cycling](#) is characterized by ≥ 4 [mood](#) episodes within 1 year. Although this patient has had distinct episodes of [hypomanic](#) and depressive symptoms, her symptoms do not meet the diagnostic criteria for a [mood](#) episode (e.g., ≥ 3 [hypomanic](#) symptoms for a [hypomanic episode](#), ≥ 5 [SIGECAPS](#) symptoms for a [major depressive episode](#)).

F - Major depressive disorder with atypical features

Explanation Why

[Major depressive disorder with atypical features](#) is characterized by [mood](#) reactivity (i.e., transient improvement in [mood](#) in response to a positive event) and ≥ 2 symptoms of increased appetite or weight gain, [hypersomnia](#), leaden paralysis, and long-standing interpersonal rejection sensitivity that results in occupational or social impairment. Although this patient has an increased appetite, she does not have other atypical features, and her symptoms do not meet the diagnostic criteria for a [major depressive episode](#) (i.e., ≥ 5 [SIGECAPS](#) symptoms). In addition, the presence of [hypomanic](#) symptoms is uncharacteristic of [major depressive disorder with atypical features](#).

Question # 30

An otherwise healthy 76-year-old man is brought to the physician because of poor sleep for the past several years. Every night he has been sleeping less and taking longer to fall asleep. During the day, he feels tired and has low energy and difficulty concentrating. Sleep hygiene and relaxation techniques have failed to improve his sleep. He would like to start a short-term pharmacological therapy trial but does not want a drug that makes him drowsy during the day. Which of the following is the most appropriate pharmacotherapy for this patient?

	Answer	Image
A	Temazepam	
B	Phenobarbital	
C	Diphenhydramine	
D	Suvorexant	
E	Zaleplon	
F	Flurazepam	

Hint

This elderly patient presents with sleep-onset insomnia that is resistant to nonpharmacologic measures. The most appropriate pharmacotherapy for this patient is a short-acting agent that acts as a selective agonist on the BZ₁ subtype of the GABA receptor.

Correct Answer

A - Temazepam

Explanation Why

Intermediate-acting [benzodiazepines](#), such as [temazepam](#), should be avoided in elderly patients, as there is an increased risk of significant adverse effects such as cognitive impairment and falls with severe consequences (e.g., [hip fracture](#)). Moreover, this patient presents with sleep-onset [insomnia](#), so that a short-acting agent would be more appropriate. Although intermediate-acting [benzodiazepines](#) have a lower risk of the “hangover” effect compared to long-acting [benzodiazepines](#), they have a higher risk for [benzodiazepine dependence](#).

B - Phenobarbital

Explanation Why

[Barbiturates](#), such as [phenobarbital](#), can be used in the treatment of [insomnia](#). However, due to their significant adverse effects (e.g., tolerance, dependence, cardiorespiratory depression), another class of drugs is preferred.

C - Diphenhydramine

Explanation Why

[Diphenhydramine](#) is a strong sedative that belongs to the first-generation [H1 receptor antagonists](#). However, [antihistamines](#) are not recommended for use by elderly persons due to their significant side effects (e.g., drowsiness, confusion, [anticholinergic side effects](#)).

D - Suvorexant

Explanation Why

[Orexin](#) antagonists, such as [suvorexant](#), can be used in the treatment of [insomnia](#) in elderly patients. However, due to [suvorexant](#)'s side effects (e.g., daytime [somnia](#), residual daytime sedation), a shorter-acting agent would be preferred.

E - Zaleplon

Explanation Why

[Zaleplon](#) is a non-[benzodiazepine](#) hypnotic with a very short [half-life](#) (~ 1 hour). Therefore, it is effective for the treatment of sleep-onset [insomnia](#), as seen in this patient. [Zolpidem](#) is another non-[benzodiazepine](#) hypnotic, with a longer [half-life](#) than [Zaleplon](#) (up to 4.5 hours). It is used for patients that have difficulty with sleep onset and/or sleep maintenance. Non-[benzodiazepines](#) have marked sedative effects and are not associated with drug dependence. Because of their more favorable side effect profile, they are preferred over [benzodiazepines](#) for the treatment of [sleep disorders](#), particularly among elderly persons (except [zolpidem](#) increases the risk for falls in elderly). However, like [benzodiazepines](#), they are not approved for long-term use.

F - Flurazepam

Explanation Why

Long-acting [benzodiazepines](#), such as flurazepam, should be avoided in elderly patients, as there is an increased risk of significant adverse effects such as cognitive impairment and falls with severe consequences (e.g., [hip fracture](#)). Moreover, this patient presents with sleep-onset [insomnia](#), so that a short-acting agent would be more appropriate. Although long-acting [benzodiazepines](#) have a lower risk of addiction compared to short-acting [benzodiazepines](#), they have a higher risk of the “hangover” effect the day after they are used.

Question # 31

A 27-year-old man with seizure disorder is brought to the emergency department by his girlfriend after falling while climbing a building. The girlfriend reports that he was started on a new medication for treatment of depressed mood, low energy, and difficulty sleeping 2 weeks ago by his physician. She says that he has had unstable emotions for several months. Over the past 3 days, he has not slept and has spent all his time “training to climb Everest.” He has never climbed before this period. He also spent all of his savings buying mountain climbing gear. Physical examination shows ecchymoses over his right upper extremity, pressured speech, and easy distractibility. He is alert but not oriented to place. Which of the following drugs is the most likely cause of this patient's current behavior?

	Answer	Image
A	Lithium	
B	Quetiapine	
C	Bupropion	
D	Venlafaxine	
E	Selegiline	

Hint

This patient's lack of sleep, sense of grandiosity (training to climb Mount Everest), risky behavior (climbing buildings, uncontrolled spending), pressured speech, and distractibility are consistent with acute mania. Certain antidepressants can precipitate mania, especially in patients with undiagnosed bipolar disorder. Bipolar disorder commonly manifests with an initial depressive episode and thus may first be mistaken for unipolar depressive disorder, as was likely the case here.

Correct Answer

A - Lithium

Explanation Why

[Lithium](#) is a [mood stabilizer](#) that is used for acute treatment and maintenance therapy of [mania](#). This patient likely received medication for [unipolar depressive disorder](#). However, [lithium](#) is not used as monotherapy for this condition. Moreover, [lithium](#) should prevent [manic episodes](#), not precipitate them.

B - Quetiapine

Explanation Why

[Quetiapine](#) is an [atypical antipsychotic](#) that can be used for acute treatment of [manic](#) and depressive episodes associated with [bipolar disorder](#) and as combination therapy for the long-term treatment of severe or refractory [bipolar disorder](#). This patient was likely prescribed medication for [unipolar depressive disorder](#). However, [quetiapine](#) is not used as monotherapy for this condition. Moreover, with the exception of isolated [case reports](#), this drug is not known to precipitate [mania](#).

C - Bupropion

Explanation Why

[Bupropion](#) is an [atypical antidepressant](#) that inhibits [norepinephrine](#) and [dopamine](#) reuptake. In patients with [bipolar disorder](#), it carries a low risk of a switch in [mood](#) polarity to [mania](#). However, [bupropion](#) lowers the [seizure](#) threshold and is not used in patients with [seizure disorder](#).

D - Venlafaxine

Explanation Why

[Venlafaxine](#) is a [serotonin-norepinephrine reuptake inhibitor](#) used to treat [unipolar depressive disorder](#). In a patient with underlying [bipolar disorder](#), monotherapy with [antidepressants](#) (especially [venlafaxine](#) and TCAs) increases the risk of a switch in [mood](#) polarity to [hypomania](#) or [mania](#). Discontinuation of [venlafaxine](#) and treatment with an [antipsychotic drug](#) are warranted in this patient. Moreover, following remission of his [manic episode](#), he should be started on maintenance therapy with a [mood stabilizer](#) (e.g., [lithium](#), [valproic acid](#)). If indicated, [antidepressants](#) may be used after initiating [mood stabilizers](#).

E - Selegiline

Explanation Why

[Selegiline](#) is a [monoamine oxidase-B inhibitor](#) that can be used to treat [unipolar depressive disorder](#) (transdermal application) and [Parkinson disease](#). However, it is typically not used for the initial treatment of depression because of its unfavorable side effect profile. Furthermore, while [selegiline](#) can cause [serotonin syndrome](#), it is not known to precipitate [mania](#).

Question # 32

A 23-year-old man is brought to the emergency department from a college party because of a 1-hour history of a crawling sensation under his skin. He appears anxious and is markedly pale. His temperature is 38°C (100.4°F), pulse is 104/min, respirations are 18/min, and blood pressure is 145/90 mm Hg. Physical examination shows diaphoretic skin, moist mucous membranes, and dilated pupils. Which of the following substances is most likely the cause of this patient's symptoms?

	Answer	Image
A	Lysergic acid diethylamide	
B	Phencyclidine	
C	Cocaine	
D	Cannabis	
E	Scopolamine	
F	Oxycodone	

Hint

Tachycardia, hypertension, pallor (due to cutaneous vasoconstriction), mydriasis, fever, and diaphoresis are clinical features of sympathetic overactivity.

Correct Answer

A - Lysergic acid diethylamide

Explanation Why

An overdose of [lysergic acid diethylamide \(LSD\)](#) can cause [hallucinations](#), anxiety, and, rarely, features of [sympathetic](#) overactivity due to the effects of the drug itself or [serotonin syndrome](#). However, the [hallucinations](#) associated with [LSD](#) are typically visual or auditory, in contrast to this patient's [tactile hallucinations](#).

B - Phencyclidine

Explanation Why

An overdose of [phencyclidine](#) can result in [tachycardia](#), [hypertension](#), and [hallucinations](#). However, patients are characteristically agitated (to the point of being violent) and usually have nystagmus with mid-sized or constricted pupils. Pupillary dilation in a non-agitated patient suggests overdose with a different drug.

C - Cocaine

Explanation But

Maternal [cocaine](#) use during [pregnancy](#) can result in [IUGR](#), [preterm birth](#), or [placental abruption](#).

Explanation Why

[Cocaine](#) increases [sympathetic](#) activity by inhibiting the presynaptic reuptake of [norepinephrine](#). In addition to features of [sympathetic](#) overactivity, acute [cocaine](#) overdose can also cause [hallucinations](#) (including [tactile hallucinations](#) such as [formication](#)) and [paranoid](#) ideation. Acute [cocaine](#) overdose is treated with [benzodiazepines](#) and alpha-1 blockers (e.g., [phenoxylbenzamine](#)). In the case of a suspected [cocaine](#) overdose, [beta-blockers](#) should not be used as first-line therapy because they can

lead to unopposed [alpha-1 receptor](#) activation and thereby precipitate a [hypertensive crisis](#) or [myocardial ischemia](#) due to coronary vasospasm. Chronic use of [cocaine](#) can cause nasal septal [hypertrophy](#) (if used intranasally), periportal hepatitis (if ingested), [myocarditis](#), and/or [pulmonary artery hypertension](#).

D - Cannabis

Explanation Why

Agitation, [tactile hallucinations](#) (e.g., [formication](#)), [tachycardia](#), [hypertension](#), and pupillary dilation have been reported following an acute [cannabis](#) overdose, but such a presentation is extremely rare. Instead, most patients would present with features such as [conjunctival injection](#), slowed time perception, and [hyperphagia](#). Moreover, most patients with [cannabis](#) overdose would have dry mucous membranes, in contrast to this patient with moist mucous membranes.

E - Scopolamine

Explanation Why

An overdose of [scopolamine](#) can result in symptoms of [anticholinergic toxidrome](#) such as [fever](#), pupillary dilation, [tachycardia](#), [hypertension](#), and, rarely, [hallucinations](#). However, the [skin](#) in patients with [anticholinergic toxicity](#) is usually dry and flushed, and the [hallucinations](#) associated with [scopolamine](#) are typically visual or auditory. A different substance is most likely responsible for this patient's [diaphoretic](#), pale [skin](#) and [tactile hallucinations](#).

F - Oxycodone

Explanation But

Symptoms such as [fever](#), [tachycardia](#), [hypertension](#), and [diaphoresis](#) can occur following overdose of the [opiate tramadol](#), which can cause [serotonin syndrome](#).

Explanation Why

Overdose with an [opiate](#) such as oxycodone would result in [bradypnea](#) (due to respiratory depression) and [miosis](#), not [mydriasis](#).

Question # 33

A 23-year-old woman is brought to the emergency department by her boyfriend 10 minutes after ingesting at least 15 acetaminophen tablets. She has been admitted to the hospital several times in the past few months after attempted self-harm. She claims that her boyfriend is “extremely selfish” and “does not care for her.” She says she feels lonely and wants her boyfriend to pay attention to her. Her boyfriend says that they have broken up 10 times in the past year because she is prone to outbursts of physical aggression as well as mood swings. He says that these mood swings last a few hours and can vary from states of “exuberance and affection” to states of “depression.” On examination, the patient appears well-dressed and calm. She has normal speech, thought processes, and thought content. Which of the following is the most likely diagnosis?

	Answer	Image
A	Narcissistic personality disorder	
B	Cyclothymic disorder	
C	Histrionic personality disorder	
D	Bipolar II disorder	
E	Bipolar I disorder	
F	Borderline personality disorder	
G	Dependent personality disorder	

	Answer	Image
H	Antisocial personality disorder	

Hint

Splitting is a common defense mechanism employed by individuals with this condition. The treatment of choice for this condition is dialectical behavioral therapy.

Correct Answer

A - Narcissistic personality disorder

Explanation Why

Patients with [narcissistic personality disorder](#) (NPD) are often manipulative, but aggressiveness, impulsivity, feelings of inadequacy, and self-harm are not features of this disorder. Instead, patients have a strong sense of self-importance, haughty behavior, a sense of entitlement, a need for excessive admiration, a need to associate only with people or institutions of the highest status, a lack of empathy, envy of others, and/or a belief that others are envious of them.

B - Cyclothymic disorder

Explanation Why

A [cyclothymic disorder](#) can result in [mood](#) swings that range from exuberance to sadness. However, these [mood](#) swings would occur in periods that typically last several days, unlike the [mood](#) swings in this patient, which last several hours. Moreover, these [mood](#) swings should be present at least half the time over a 2-year period before a diagnosis of [cyclothymic disorder](#) can be made.

C - Histrionic personality disorder

Explanation Why

Patients with [histrionic personality disorder](#) display attention-seeking, manipulative behavior and are willing to be viewed as fragile or dependent in order to get attention. However, aggressiveness, feelings of emptiness, and self-harm are not features of [histrionic personality disorder](#). Instead, patients use flirtatious behavior, theatrical [speech](#), or their physical appearance in order to gain attention.

D - Bipolar II disorder

Explanation Why

[Bipolar II disorder](#) can result in periods of exuberance during [hypomanic episodes](#) as well as a history of [attempted suicide](#) and/or periods of sadness during depressive episodes. This patient, however, does not meet the criteria for [hypomanic episodes](#) because the periods of exuberance do not last more than 4 days and are not accompanied by other features such as psychomotor agitation, a decreased need for sleep, or risky behavior (e.g., spending sprees, impulsive sexual behavior).

E - Bipolar I disorder

Explanation Why

[Bipolar I disorder](#) can result in periods of exuberance during [manic episodes](#) as well as a history of [attempted suicide](#) and/or periods of sadness during depressive episodes. This patient, however, does not meet the criteria for [manic episodes](#) because the periods of exuberance do not last more than 7 days and are not accompanied by other features such as psychomotor agitation, a decreased need for sleep, or risky behavior (e.g., spending sprees, impulsive sexual behavior).

F - Borderline personality disorder

Explanation Why

[Borderline personality disorder](#) is diagnosed when ≥ 5 of the following 9 features are present: efforts to avoid real or imagined abandonment, unstable and intense interpersonal relationship(s) characterized by alternations between extremes of idealization and devaluation (splitting), recurrent suicidal threats or attempts, unstable self-image, unstable [mood](#), difficulty controlling anger, feelings of emptiness, impulsivity, transient stress-related [paranoia](#). [Borderline personality disorder](#) usually manifests by early adulthood and is three times more common in women than men.

G - Dependent personality disorder

Explanation Why

Patients with [dependent personality disorder](#) have an intense need to be taken care of and a fear of abandonment. However, aggressive behavior and self-harm are not features of a [dependent personality disorder](#). Instead, patients tend to be submissive in relationships and tend to urgently seek a new relationship once a relationship fails in order to avoid feeling alone and helpless.

H - Antisocial personality disorder

Explanation Why

Patients with [antisocial personality disorder](#) are often impulsive, physically aggressive, and manipulative towards others and have a reckless disregard for their own safety. However, intentional self-harm is not a feature of [antisocial personality disorder](#), and the goal of being manipulative would not be to cause concern in or elicit the sympathy of another individual but to profit in some way. In addition, the individual would have a pattern of disregard for the rights of others without any remorse, as well as a history suggesting [conduct disorder](#) during [adolescence](#).

Question # 34

A 23-year-old woman is brought to the physician by her father because of irritability, mood swings, and difficulty sleeping over the past 10 days. A few days ago, she quit her job and spent all of her savings on supplies for a “genius business plan.” She has been energetic despite sleeping only 1–2 hours each night. She was diagnosed with major depressive disorder 2 years ago. Mental status examination shows pressured speech, a labile affect, and flight of ideas. Throughout the examination, she repeatedly states “I feel great, I don't need to be here.” Urine toxicology screening is negative. Which of the following is the most likely diagnosis?

	Answer	Image
A	Delusional disorder	
B	Cyclothymic disorder	
C	Bipolar disorder type II	
D	Depression with atypical features	
E	Bipolar disorder type I	
F	Schizoaffective disorder	
G	Attention-deficit hyperactivity disorder	

Hint

This patient exhibits significant changes in mood, energy, activity, and sleep that have led to severe functional impairment.

Correct Answer

A - Delusional disorder

Explanation Why

[Delusional disorder](#) is characterized by at least one [delusion](#) that lasts for at least 1 month but does not cause significant functional impairment. This patient has experienced significant functional impairment as part of a [manic episode](#) for the last 10 days, but no [delusions](#), making a different diagnosis more likely.

B - Cyclothymic disorder

Explanation Why

[Cyclothymic disorder](#) is characterized by short [hypomanic](#) and mild depressive episodes over a period of at least 2 years. To diagnose the condition, the [hypomanic episode](#) must be shorter than 1 week and the depressive episodes must be shorter than 2 weeks. This patient has experienced significant functional impairment as part of a [manic episode](#) for the past 10 days, making a different diagnosis more likely.

C - Bipolar disorder type II

Explanation Why

[Bipolar disorder type II](#) is characterized by the occurrence of at least one [hypomanic episode](#) and at least one [major depressive episode](#). To diagnose the condition, the [hypomanic episode](#) must last for at least 4 consecutive days and may not impair functioning or necessitate hospitalization. This patient has experienced significant functional impairment as part of a [manic episode](#) for the past 10 days, making a different diagnosis more likely.

D - Depression with atypical features

Explanation Why

[Depression with atypical features](#) is characterized by depressive episodes accompanied by [mood](#) reactivity, [hyperphagia](#), [hypersomnia](#), and/or interpersonal rejection sensitivity. This patient has experienced significant functional impairment as part of a [manic episode](#) without atypical features, making a different diagnosis more likely.

E - Bipolar disorder type I

Explanation Why

[Bipolar disorder type I](#) is a [mood disorder](#) characterized by the occurrence of one or more [manic episodes](#) with or without depressive episodes. In order to diagnose [bipolar disorder](#) type 1, these [manic episodes](#) must last for at least 7 consecutive days, and patients must have at least 3 of the DIG FAST changes (distractibility, impulsive behavior, [grandiosity](#), [flight of ideas](#), activity increase, sleep deficit, and talkativeness). These changes cannot be attributable to an organic psychic disorder or psychotropic substances.

F - Schizoaffective disorder

Explanation Why

[Schizoaffective disorder](#) is characterized by [psychosis](#) (e.g., [hallucinations](#), [delusions](#)) that is intermittently accompanied by a major [mood disorder](#) (e.g., [manic](#) or depressive symptoms). To diagnose the condition, the [psychotic symptoms](#) must be more dominant than the [mood](#) symptoms, and [psychosis](#) must have been present for at least 2 weeks in the absence of any [mood](#) disturbance. This patient does not have any signs of [psychosis](#), making a different diagnosis more likely.

G - Attention-deficit hyperactivity disorder

Explanation Why

[ADHD](#) is characterized by impulsivity, hyperactivity, and inattention that results in impairment of social skills and occupational or academic performance. Symptoms usually first appear before the age of 12 and must be present for at least 6 months in order for the condition to be diagnosed. Symptoms must occur in more than one setting (e.g., at school and at home). This patient has experienced significant functional impairment as part of a [manic episode](#) for the past 10 days and has a history of depression, making a different diagnosis more likely.

Question # 35

A 24-year-old woman comes to the physician because of a 1-year history of intermittent episodes of shortness of breath, chest tightness, palpitation, dizziness, sweaty hands, and a feeling of impending doom. She says her symptoms usually occur within a few blocks of her apartment but she can avoid a “full attack” if she can get home fast enough. Over the past year she has adjusted her life to avoid “attacks” by working from home, having her groceries delivered to her apartment, and having her friends and boyfriend come to her apartment to visit. She says she knows it's excessive, but she has to have her boyfriend accompany her when she leaves the house, otherwise she would be too afraid of being alone outside her home. Within a few hours after each episode, physical examination and laboratory studies have shown no abnormalities. Which of the following is the most likely diagnosis?

	Answer	Image
A	Agoraphobia	
B	Avoidant personality disorder	
C	Social anxiety disorder	
D	Separation anxiety disorder	
E	Panic disorder	
F	Somatic symptom disorder	
G	Dependent personality disorder	

	Answer	Image
H	Generalized anxiety disorder	

Hint

This patient's inability to leave her home by herself is a severe manifestation of her condition.

Correct Answer

A - Agoraphobia

Explanation But

The presence of symptoms in only one setting is consistent with a diagnosis of situational [phobia](#) (a type of [specific phobia](#)) rather than [agoraphobia](#). Treatment of [agoraphobia](#) includes [cognitive behavioral therapy](#) and [SSRIs](#).

Explanation Why

[Agoraphobia](#) is an [anxiety disorder](#) characterized by an inordinate fear or anxiety surrounding situations that are perceived as difficult to leave or situations in which it might be difficult to seek help. These situations can trigger symptoms of a [panic attack](#) such as [dyspnea](#), chest tightness, [palpitations](#), [dizziness](#), [diaphoresis](#), and a feeling of impending doom. Individuals with [agoraphobia](#) actively avoid situations that could trigger these symptoms. This condition typically develops before 35 years of age, is more common among women, and has a strong hereditary component. Diagnosis requires the presence of symptoms over a period of ≥ 6 months in ≥ 2 of the following settings: areas outside the home (e.g., when going for a walk), open spaces (e.g., bridges, parking lots), enclosed places (e.g., stores, theaters), lines or crowds, or public transportation; the symptoms also must not be explained by other related conditions (e.g., [social anxiety disorder](#)).

B - Avoidant personality disorder

Explanation Why

Patients with [avoidant personality disorder](#) can isolate themselves, but they do so out of feelings of inadequacy and/or a fear of criticism. [Avoidant personality disorder](#) is not characterized by symptoms of [panic attacks](#) ([dyspnea](#), chest tightness, [palpitations](#), [dizziness](#), [diaphoresis](#), and a feeling of impending doom).

C - Social anxiety disorder

Explanation Why

Patients with [social anxiety disorder](#) have episodes of distressing symptoms over a period of ≥ 6 months and may confine themselves to their homes. The distressing symptoms arise from a fear of being viewed negatively by others and typically occur during social interactions (e.g., meeting new people), when performing in front of others (e.g., public speaking), and/or when feeling observed (e.g., using public restrooms, eating or drinking in public). The triggers for this patient's symptoms are not typical of patients with [social anxiety disorder](#). Moreover, symptoms of [social anxiety disorder](#) are not alleviated when patients are accompanied by an attachment figure, whereas this patient's symptoms are not present when she is accompanied by her boyfriend.

D - Separation anxiety disorder

Explanation Why

Patients with [separation anxiety disorder](#) have distressing symptoms due to a fear of separation from home or from a person to whom they are attached, and they may refuse to leave home by themselves. These symptoms can last for ≥ 6 months. However, the cause of distressing symptoms in a patient with [separation anxiety disorder](#) is a fear of death or harm befalling the attachment figure, not a fear of being alone when the distressing symptoms occur.

E - Panic disorder

Explanation Why

Patients with [panic disorder](#) have symptoms of [panic attacks](#) (e.g., [dyspnea](#), chest tightness, [palpitations](#), [dizziness](#), [diaphoresis](#), and a feeling of impending doom) and can have significant concerns about these symptoms that result in maladaptive behaviors. However, because of this patient's specific trigger (fear of leaving her home), her presentation is better explained by another diagnosis.

F - Somatic symptom disorder

Explanation Why

Patients with [somatic symptom disorder](#) have one or more distressing symptoms (e.g., abdominal [pain](#), fatigue) over a period of ≥ 6 months that cannot be explained by an organic medical condition. Patients with [somatic symptom disorder](#) can have significant concerns about their symptoms that result in maladaptive behaviors. However, a characteristic feature of this condition is that at least one of the symptoms that the patient reports must be present continuously. This patient's symptoms occur episodically.

G - Dependent personality disorder

Explanation Why

Patients with [dependent personality disorder](#) are reliant on an attachment figure for everyday decisions and reassurance. They often feel helpless when left alone and can go to extraordinary lengths to maintain a relationship. However, the measures employed to maintain the relationship are typically appeasing and submissive behaviors, including tolerance of abuse. [Dependent personality disorder](#) is not characterized by symptoms of [panic attacks](#) (e.g., [dyspnea](#), chest tightness, [palpitations](#), [dizziness](#), [diaphoresis](#), and a feeling of impending doom).

H - Generalized anxiety disorder

Explanation Why

Patients with [generalized anxiety disorder](#) (GAD) have multiple somatic symptoms over a period of ≥ 6 months. These symptoms include restlessness, irritability, fatigue, impaired concentration, [insomnia](#), and muscle tension; they can wax and wane in severity but are typically present persistently. GAD does not manifest with symptoms of [panic attacks](#) (e.g., [dyspnea](#), chest tightness, [palpitations](#), [dizziness](#), [diaphoresis](#), and a feeling of impending doom). Moreover, this condition is not caused by specific, identifiable triggers.

Question # 36

A 16-year-old boy is brought to a psychotherapist for counseling because he was physically abused by his father. During the first therapy session, the patient recounts the numerous encounters that he had with his abuser. At the end of the session, the therapist, who lost her own son in a car accident when he was 15 years old, refuses to let the patient take the bus back alone to his custodial guardian's home. She offers to take him back in her own car instead, saying, "This way, I will rest assured that you have reached home safely". The therapist's behavior can be best described as an instance of which of the following?

	Answer	Image
A	Displacement	
B	Isolation	
C	Sublimation	
D	Projection	
E	Countertransference	
F	Identification	

Hint

The psychotherapist is having difficulty maintaining her position of neutrality and seems to feel protective towards her patient.

Correct Answer

A - Displacement

Explanation Why

[Displacement \(psychiatry\)](#) is an [immature defense mechanism](#) that involves shifting negative feelings toward an event or person to a neutral, less threatening target. An example of displacement would be if the therapist had been reprimanded unfairly by her supervisor and shifted her frustrations to her husband. However, her loss of neutrality can better be attributed to another psychological mechanism.

B - Isolation

Explanation Why

[Isolation of affect](#) is an [immature defense mechanism](#) in which individuals detach themselves from strong thoughts/emotions toward a specific source. An example of [isolation of affect](#) would be if the therapist started talking about the death of her son without showing any emotions. However, the therapist's actions imply a loss of neutrality, which can be better attributed to another psychological mechanism.

C - Sublimation

Explanation Why

[Sublimation \(psychiatry\)](#) is a [mature defense mechanism](#) in which an individual channels socially unacceptable desires into acceptable actions. An example of [sublimation](#) would be if the therapist sublimated [jealousy](#) toward her coworkers into performing better at work. However, the therapist's actions imply a loss of neutrality, which can be better attributed to another psychological mechanism.

D - Projection

Explanation Why

[Projection \(psychiatry\)](#) is a defense mechanism in which an individual is in denial of certain feelings or desires and attributes them to another person. An example of projection would be if the therapist were in denial of her own guilt regarding the death of her son and instead projected the guilt onto her husband. The therapist's loss of neutrality can be better attributed to a different psychological mechanism.

E - Countertransference

Explanation Why

[Countertransference](#) is a phenomenon in which a therapist projects feelings about important persons in their own life onto the patient. This therapist has likely transferred her feelings toward her deceased son to the patient. Her breaking of neutrality in the absence of an immediate need (e.g., impending harm to the patient) and in order to alleviate her own feelings of anxiety towards the patient's situation suggest [countertransference](#). Awareness of [countertransference](#) is necessary to facilitate therapeutic work, as it allows the therapist to circumvent [transference](#) of their own insecurities onto the patient.

F - Identification

Explanation Why

[Identification \(psychiatry\)](#) is an [immature defense mechanism](#) that involves individuals unconsciously copying characteristics or habits of an idealized person. An example of the therapist using this defense mechanism would be her taking on either external characteristics (e.g., wearing the same clothes, having the same haircut) or internal characteristics (e.g., behaviors, attitudes) of the patient. However, her loss of neutrality can better be attributed to another psychological mechanism.

Question # 37

A 5-year-old boy is brought to the emergency department by his mother because of a sudden loss of consciousness. He has asthma and has been hospitalized multiple times. His mother has type 2 diabetes mellitus. He is somnolent and diaphoretic. Serum studies show a glucose concentration of 22 mg/dL and a potassium concentration of 2.4 mEq/L. A dextrose infusion is administered, after which his glucose concentration normalizes and his symptoms improve. He is admitted to the hospital for further observation. Overnight, he has another episode of decreased consciousness. Serum studies taken during the episode show a glucose concentration of 19 mg/dL, an insulin concentration of 108 mIU/L (N=2.6–24.9), and a C-peptide concentration of 0.3 ng/mL (N = 0.8–3.1). Which of the following is the most likely diagnosis?

	Answer	Image
A	Malingering	
B	Glucagonoma	
C	Primary adrenal insufficiency	
D	Insulinoma	
E	Conversion disorder	
F	Somatostatinoma	
G	Factitious disorder imposed on another	

Hint

Endogenous insulin release involves the cleavage of proinsulin into insulin and C-peptide.

Correct Answer

A - Malingering

Explanation Why

[Malingering](#) is the intentional falsification of symptoms and/or diagnoses for [secondary gain](#) (e.g., financial incentive, time off work). This boy has received exogenous [insulin](#), which causes hyperinsulinemia, [hypoglycemic](#) episodes, and decreased serum [C-peptide](#) concentrations (because exogenous [insulin](#) does not contain [C-peptide](#)). However, [malingering](#) is not the most likely diagnosis in this scenario because it is very unlikely that this 5-year-old boy has the capability or motivation to seek [secondary gain](#).

B - Glucagonoma

Explanation Why

A [glucagonoma](#) is a [pancreatic](#) neuroendocrine tumor that produces excess [glucagon](#), which results in [hyperglycemia](#) (not [hypoglycemia](#)). In addition, this patient does not have other typical manifestations of a [glucagonoma](#), which include [necrolytic migratory erythema](#), [venous thromboembolic conditions](#), weight loss, and neuropsychiatric changes (e.g., depression, [psychosis](#)). Moreover, this [tumor](#) is rare and typically develops in adulthood.

C - Primary adrenal insufficiency

Explanation Why

[Primary adrenal insufficiency](#) can cause [hypoglycemic](#) episodes as a result of decreased glucose production due to [glucocorticoid](#) deficiency. However, this patient does not have other manifestations of [primary adrenal insufficiency](#), which include gastrointestinal symptoms (e.g., nausea, vomiting), fatigue, [hypotension](#), [dizziness](#), and [skin hyperpigmentation](#). Moreover, [primary adrenal insufficiency](#) does not cause hyperinsulinemia or decreased serum [C-peptide](#) concentrations.

D - Insulinoma

Explanation Why

An [insulinoma](#) is a [pancreatic](#) neuroendocrine tumor that produces excess [insulin](#), which results in hyperinsulinemia and [hypoglycemic](#) episodes. However, endogenous [insulin](#) production causes increased (not decreased) serum [C-peptide](#) concentrations. Moreover, this [tumor](#) is rare and typically develops in adulthood.

E - Conversion disorder

Explanation Why

[Conversion disorder](#) is a [somatic symptom disorder](#) characterized by significant distress and/or psychosocial impairment caused by neurologic symptoms (e.g., paralysis, weakness, visual disturbances) that cannot be fully attributed to another condition. This patient has episodic loss of consciousness, but these symptoms are caused by his [hypoglycemic](#) episodes.

F - Somatostatinoma

Explanation Why

A [somatostatinoma](#) is a [pancreatic](#) neuroendocrine tumor that produces excess [somatostatin](#), which results in decreased secretion of several [hormones](#), including [insulin](#), [glucagon](#), and [growth hormone](#). This patient has hyperinsulinemia, not hypoinsulinemia. In addition, this patient does not have typical manifestations of a [somatostatinoma](#), which include abdominal [pain](#), weight loss, and [hyperglycemic](#) episodes (not [hypoglycemic](#) episodes). Moreover, this [tumor](#) is rare and typically develops in adulthood.

G - Factitious disorder imposed on another

Explanation Why

[Factitious disorder imposed on another](#) (FDIA) is a psychiatric condition in which an individual intentionally falsifies manifestations of disease in another individual (e.g., their child or elderly dependent) for primary gain. This boy's mother, who has [type 2 diabetes mellitus](#), has given him exogenous [insulin](#), which causes hyperinsulinemia, [hypoglycemic](#) episodes, and decreased serum [C-peptide](#) concentrations (because exogenous [insulin](#) does not contain [C-peptide](#)). The primary gain in this scenario includes the attention, sympathy, and care given to sick patients and their families.

Question # 38

A 35-year-old man comes to the Veterans Affairs hospital because of a 2-month history of anxiety. He recently returned from his third deployment to Iraq, where he served as a combat medic. He has had difficulty readjusting to civilian life. He works as a taxi driver but had to take a leave of absence because of difficulties with driving. Last week, he hit a stop sign because he swerved out of the way of a grocery bag that was in the street. He has difficulty sleeping because of nightmares about the deaths of some of the other soldiers in his unit and states, "it's my fault, I could have saved them. Please help me." Mental status examination shows a depressed mood and a restricted affect. There is no evidence of suicidal ideation. Which of the following is the most appropriate initial step in treatment?

	Answer	Image
A	Motivational interviewing	
B	Dialectical behavioral therapy	
C	Prazosin therapy	
D	Fluoxetine therapy	
E	Venlafaxine therapy	
F	Cognitive behavioral therapy	

Hint

This patient's 2-month history of anxiety, hypervigilance, nightmares, and feelings of sadness and guilt following a traumatic event (the deaths of his fellow soldiers) are highly suggestive of a diagnosis of posttraumatic stress disorder (PTSD).

Correct Answer

A - Motivational interviewing

Explanation Why

[Motivational interviewing](#) is a nonconfrontational therapy approach often used when evaluating individuals to assess where they are in the [transtheoretical model of behavioral change](#) in order to encourage them to change certain maladaptive behaviors. It is often used to evaluate individuals with [substance use disorders](#) and/or [depressive disorders](#). It is not the most appropriate initial step in treatment for this patient with [PTSD](#) who is already help-seeking.

B - Dialectical behavioral therapy

Explanation Why

[Dialectical behavioral therapy \(DBT\)](#) is most commonly used to treat patients with [borderline personality disorder](#) and can also be used to treat patients with [eating disorders](#) and some [mood disorders](#) (e.g., [bipolar disorder](#)); it is not typically used to treat [PTSD](#). [DBT](#) may be appropriate as an initial therapy for patients with [borderline personality disorder](#) who also have [PTSD](#), but this patient does not exhibit traits of this [personality disorder](#) (e.g., impulsivity without regard for consequences).

C - Prazosin therapy

Explanation Why

[Prazosin](#) therapy is used to treat nightmares associated with [PTSD](#) and may be an appropriate adjuvant medication for this patient. However, [prazosin](#) monotherapy is not an appropriate initial treatment for [PTSD](#) because it will not address this patient's other symptoms (e.g., depressed mood, hypervigilance).

D - Fluoxetine therapy

Explanation Why

[Fluoxetine](#) therapy is not the most appropriate initial therapy for patients with [PTSD](#). [Fluoxetine](#) can be used to treat patients with [PTSD](#) who refuse the more appropriate therapy or do not have access to it. However, [fluoxetine](#) takes approx. 4–6 weeks before the onset of therapeutic effects, which makes it a suboptimal choice for the initial management of this patient's symptoms.

E - Venlafaxine therapy

Explanation Why

[Venlafaxine](#) therapy is not the most appropriate initial therapy for patients with [PTSD](#). [Venlafaxine](#) can be used to treat patients with [PTSD](#) who refuse the more appropriate therapy or do not have access to it. However, [venlafaxine](#) takes approx. 4–6 weeks before the onset of therapeutic effects, which makes it a suboptimal choice for the initial management of this patient's symptoms.

F - Cognitive behavioral therapy

Explanation But

Pharmacotherapy alone is a reasonable treatment option for patients with [PTSD](#) who refuse or do not have access to [cognitive behavioral therapy](#).

Explanation Why

Trauma-focused [cognitive behavioral therapy](#) ([CBT](#)), with or without pharmacotherapy, is the best initial step to treat this patient's [PTSD](#). This form of [psychotherapy](#) is effective both in the short term and long term for [PTSD](#). [CBT](#) utilizes cognitive restructuring (i.e., thinking differently about the meanings imposed on events) and behavioral modifications (e.g., [systemic desensitization](#), [aversion therapy](#)) to change disruptive thought patterns and improve functioning. The exposure therapy aspect of trauma-focused [CBT](#) can significantly improve symptoms such as avoidance, hypervigilance, and

negative emotions as patients learn to manage their fears within a safe environment.

Question # 39

A 16-year-old boy is brought to the physician by his mother because she is worried about his behavior. Yesterday, he was expelled from school for repeatedly skipping classes. Over the past 2 months, he was suspended 3 times for bullying and aggressive behavior towards his peers and teachers. Once, his neighbor found him smoking cigarettes in his backyard. In the past, he consistently maintained an A grade average and had been a regular attendee of youth group events at their local church. The mother first noticed this change in behavior 3 months ago, around the time at which his father moved out after discovering his wife was having an affair. Which of the following defense mechanisms best describes the change in this patient's behavior?

	Answer	Image
A	Reaction formation	
B	Suppression	
C	Acting out	
D	Projection	
E	Passive aggression	
F	Regression	

Hint

Another example of this defense mechanism would be a child throwing a temper tantrum when he/she does not get their way.

Correct Answer

A - Reaction formation

Explanation Why

[Reaction formation](#) is a [neurotic defense mechanism](#) in which the individual copes with a stressor by unconsciously transforming an unacceptable feeling or impulse into the polar opposite (e.g., a xenophobic person is extremely nice to foreigners). This 16-year-old did not replace the unpleasant feelings associated with the separation of his parents with an opposite reaction.

B - Suppression

Explanation Why

[Suppression \(psychiatry\)](#) is a [mature defense mechanism](#) by which the individual intentionally withholds the attention from an anxiety-provoking thought (e.g., choosing not to worry about impending test results). This 16-year-old is not able to consciously suppress the unpleasant feelings associated with the separation of his parents, and instead uses a different defense mechanism to cope with his situation.

C - Acting out

Explanation Why

[Acting out \(psychiatry\)](#) is a type of [immature defense mechanism](#) by which the individual copes with a stressor by performing an often extreme behavior (e.g., throwing tantrums, using drugs, committing crimes) to express repressed or unconscious feelings and thoughts. This 16-year-old's extreme and aggressive behavior is his mechanism to deal with the anxiety and conflict caused by the separation of his parents.

D - Projection

Explanation Why

[Projection \(psychiatry\)](#) is a [narcissistic defense mechanism](#) in which the individual attributes unacceptable feelings or impulses to another person (e.g., a wife accusing her husband of cheating while she has an affair). This 16-year-old does not attribute the unpleasant feelings associated with the separation of his parents to someone else but instead uses a different defense mechanism to cope with his situation.

E - Passive aggression

Explanation Why

[Passive aggression](#) is an [immature defense mechanism](#) in which the individual expresses aggression toward others in an indirect, nonconfrontational manner (e.g., not returning phone calls or intentionally missing meetings). This 16-year-old behaves in an openly aggressive and extreme way, which is more characteristic of a different defense mechanism.

F - Regression

Explanation Why

[Regression \(psychiatry\)](#) is an [immature defense mechanism](#) by which the individual avoids dealing with stressors by involuntarily returning to a less mature state of development (e.g., an [adolescent](#) wanting to sleep in her parents' bed during exam periods). This 16-year-old did not try to return to a child-like state to avoid the unpleasant feelings associated with his parents' separation but instead uses a different defense mechanism to cope with his situation.

Question # 40

A 32-year-old woman comes to the physician because of a 4-day history of headache, depressed mood, insomnia due to vivid dreams, and fatigue. Since yesterday, she has also had nausea and has noticed an unusual “electric shock-like” sensation on her skin. She has had major depression for 6 years and multiple sclerosis for 4 years. Her medications are natalizumab and paroxetine, which she stopped taking 1 week ago after having a positive pregnancy test. She appears irritable. Vital signs are within normal limits. Examination shows flat affect, gait instability, tremor, and muscle pain. Muscle strength is normal. An MRI of the brain shows multiple old periventricular white matter lesions. Which of the following is the most likely explanation for the patient's current symptoms?

	Answer	Image
A	Antidepressant discontinuation syndrome	
B	Serotonin syndrome	
C	Progressive multifocal leukoencephalopathy	
D	Major depression relapse	
E	Multiple sclerosis relapse	
F	Bipolar disorder	

Hint

This patient's symptoms are most likely related to her stopping her medications.

Correct Answer

A - Antidepressant discontinuation syndrome

Explanation But

Although exposure to [SSRIs](#) during the [first trimester](#) of [pregnancy](#) is associated with a low risk of [teratogenicity](#), some studies have suggested an increased risk of congenital [heart](#) defects related to the use of [paroxetine](#). Nevertheless, the risks of untreated major depression in expectant mothers usually outweigh the potential risks of [antidepressant](#) therapy.

Explanation Why

Abrupt cessation of [antidepressant](#) drugs without appropriate tapering, as seen here, can lead to adverse effects in as few as 1–4 days. This patient's presentation (i.e., [headache](#), depressed mood, fatigue, [insomnia](#), nausea, sensory disturbances, irritability, [ataxia](#), [tremor](#), and myalgia) is consistent with [antidepressant discontinuation syndrome](#) (ADS), a known side effect of sudden discontinuation of [SSRIs](#). [Paroxetine](#), in particular, is associated with an increased risk of ADS. Treatment consists of restarting [antidepressant](#) therapy at the original dose before beginning to taper slowly for at least 2–4 weeks. The main clinical features of [antidepressant discontinuation syndrome](#) can be remembered with the mnemonic FINISH: [Flu-like](#) symptoms, [Insomnia](#), Nausea, Instability, Sensory disturbances, and Hyperarousal.

B - Serotonin syndrome

Explanation Why

Symptoms of [serotonin syndrome](#), which can be associated with [SSRIs](#) (e.g., [paroxetine](#)), include [tremor](#), nausea, and [ataxia](#), as seen in this patient. However, [serotonin syndrome](#) classically manifests with a triad of neuromuscular excitability (e.g., myoclonus, [hyperreflexia](#)), [autonomic dysfunction](#) (e.g., [tachycardia](#), [hypertension](#), [diaphoresis](#), hyperthermia, [mydriasis](#)), and altered mental status, none of which are present here. Moreover, this condition occurs in patients on ≥ 2 serotonergic drugs or those who switch from one serotonergic drug to another without prior tapering. This patient recently discontinued [paroxetine](#) without starting another serotonergic agent, essentially excluding this diagnosis.

C - Progressive multifocal leukoencephalopathy

Explanation Why

[Progressive multifocal leukoencephalopathy](#) (PML), which can present with gait instability and behavioral changes, as seen here, almost exclusively develops in patients with severe [immunosuppression](#). Treatment with [natalizumab](#), the drug this patient has been using for [multiple sclerosis](#), is a [risk factor](#) for PML. However, PML is associated with focal neurological deficits (e.g., [hemiparesis](#), [aphasia](#), [visual field](#) deficits), [seizures](#), and altered mental status; none of which are present in this patient. An [MRI](#) would show asymmetric, patchy, non-enhancing, multifocal [white matter](#) lesions without [mass effect](#). This patient's [MRI](#) findings are more consistent with her previously diagnosed [multiple sclerosis](#).

D - Major depression relapse

Explanation Why

This patient with a history of [major depressive disorder](#) (MDD) presents with depressed mood, flat affect, fatigue, and [insomnia](#) shortly after cessation of [antidepressant](#) therapy with [paroxetine](#), which might raise concern for an MDD relapse. However, she has only been experiencing these symptoms for 4 days, whereas the diagnosis of a [major depressive episode](#) requires the presence of ≥ 5 typical symptoms for at least 2 weeks. Moreover, symptoms occurring 3 days after discontinuation of treatment are very unlikely to be due to MDD relapse. Finally, this patient presents with neurological manifestations ([tremor](#), [ataxia](#)), which are not associated with MDD.

E - Multiple sclerosis relapse

Explanation Why

This patient with a history of [multiple sclerosis](#) (MS) presents with a change in mental state (i.e., depressed mood), gait instability, and unusual electric [shock](#)-like sensations on her [skin](#) (potentially [Lhermitte sign](#)) shortly after cessation of [natalizumab](#), raising concern of an MS relapse. However, she lacks additional symptoms of MS exacerbation, such as visual changes, motor weakness, and [autonomic dysfunction](#) (e.g., [bladder](#) disorder). Moreover, the absence of new periventricular [white](#)

[matter](#) lesions on [MRI](#) makes an MS relapse unlikely. Finally, studies have shown that the time to clinical relapse after cessation of [natalizumab](#) is about 3–5 months (consistent with its natural course of elimination), not a couple of days.

F - Bipolar disorder

Explanation Why

This patient with [major depressive disorder \(MDD\)](#) presents with a 4-day history of irritability and [insomnia](#), raising concern for a [hypomanic episode](#) with underlying [bipolar II](#) disorder. However, fatigue, a flat affect, and depressed mood, as seen here, would not be expected during a [hypomanic episode](#); in contrast, symptoms such as increased goal-directed activity, psychomotor agitation, and talkativeness, as well as heightened self-esteem, are needed to fulfill the diagnostic criteria. Moreover, this patient presents with neurological symptoms ([tremor](#), [ataxia](#)), which are not associated with [bipolar disorders](#).

Question # 1

A 23-year-old woman is brought to the emergency department by her friend because of strange behavior. Two hours ago, she was at a night club where she got involved in a fight with the bartender. Her friend says that she was smoking a cigarette before she became irritable and combative. She repeatedly asked “Why are you pouring blood in my drink?” before hitting the bartender. She has no history of psychiatric illness. Her temperature is 38°C (100.4°F), pulse is 100/min, respirations are 19/min, and blood pressure is 158/95 mm Hg. Examination shows muscle rigidity. She has a reduced degree of facial expression. She has no recollection of her confrontation with the bartender. Which of the following is the most likely primary mechanism responsible for this patient's symptoms?

	Answer	Image
A	Stimulation of μ -opioid receptors	
B	Direct stimulation of GABA receptors	
C	Inhibition of dopamine D2 receptors	
D	Stimulation of cannabinoid receptors	
E	Stimulation of 5HT2A and dopamine D2 receptors	
F	Inhibition of norepinephrine, serotonin, and dopamine reuptake	
G	Inhibition of NMDA receptors	

Hint

This patient's violent behavior, visual hallucination (pouring blood in drink), amnesia, hyperthermia, hypertension, and muscle rigidity raise concern for phencyclidine (PCP) intoxication.

Correct Answer

A - Stimulation of μ -opioid receptors

Explanation Why

Stimulation of [\$\mu\$ -opioid receptors](#) is the mechanism of action of [opioids](#), which can cause altered mental status and [amnesia](#), as seen in this patient. However, other classical features of [opioid intoxication](#) such as pinpoint pupils, respiratory depression, decreased [heart rate](#), and blood pressure, as well as [hypothermia](#) are not present. Moreover, [opioid intoxication](#) would not explain this patient's muscle [rigidity](#), [visual hallucinations](#), or violent behavior.

B - Direct stimulation of GABA receptors

Explanation Why

Direct stimulation of [GABA](#) receptors is the mechanism of action of [gamma-hydroxybutyric acid \(GHB\)](#), which can cause [amnesia](#), as seen in this patient. However, other typical features of [GHB intoxication](#) such as increased sexual desire, sensitivity to touch and sound, [lightheadedness](#), loss of consciousness, perspiration, nausea, and vomiting are not present. Moreover, [GHB](#) intoxication would not explain the violent behavior or muscle [rigidity](#) seen in this patient. Two commonly used drugs that indirectly stimulate [GABA](#) receptors are [benzodiazepines](#), which increase the frequency of opening of the [GABA_A receptor chloride](#) ion channel, and [barbiturates](#), which increase the duration of opening of the [chloride](#) ion channel.

C - Inhibition of dopamine D2 receptors

Explanation Why

Inhibition of [dopamine D₂ receptors](#) is the mechanism of action of both typical and [atypical antipsychotics](#), which can cause [neuroleptic malignant syndrome \(NMS\)](#) as a side effect. [NMS](#) can manifest with hyperthermia, [hypertension](#), muscle [rigidity](#), and reduced facial expressions, as seen in this patient. However, [NMS](#) is not associated with violent behavior, [amnesia](#) or [visual hallucinations](#).

Moreover, this patient has no history of psychiatric illness and therefore is unlikely to be taking [antipsychotic](#) medication.

D - Stimulation of cannabinoid receptors

Explanation Why

Stimulation of [cannabinoid receptors](#) is the mechanism of action of [cannabis](#), which can cause [hypertension](#) and [amnesia](#), as seen in this patient. [Cannabis](#) intoxication can further present with both joviality and dysphoria, anxiety/panic, [conjunctival injection](#), increased appetite, dry mouth, perceptual changes and impaired reaction time, concentration, and coordination, none of which are seen here. Although [cannabis](#)-induced [psychosis](#) may lead to [visual hallucinations](#), [cannabis](#) use is not associated with violent behavior, hyperthermia, or muscle [rigidity](#).

E - Stimulation of 5HT_{2A} and dopamine D₂ receptors

Explanation Why

Stimulation of 5HT_{2A} and [dopamine D₂ receptors](#) is the mechanism of action of [lysergic acid diethylamide \(LSD\)](#), a hallucinogen that can cause hyperthermia, [hypertension](#), and [visual hallucinations](#), as seen in this patient. However, other features of [LSD](#) intoxication such as [depersonalization](#), synesthesia, changes in time perception, and [flight of ideas](#) are not present. Moreover, [LSD](#) intoxication does not typically cause violent behavior and [amnesia](#), and would not explain this patient's muscle [rigidity](#).

F - Inhibition of norepinephrine, serotonin, and dopamine reuptake

Explanation Why

Inhibition of [norepinephrine](#), [serotonin](#), and [dopamine](#) reuptake is the mechanism of action of [cocaine](#), which can cause [hypertension](#), hyperthermia, and [visual hallucinations](#), as seen in this patient. However, other features of [cocaine](#) intoxication such as euphoria, increased [alertness](#), nausea, sweating, [mydriasis](#), [chest pain](#), and [tachyarrhythmias](#) are not present. Moreover, [cocaine](#) intoxication is not typically associated with muscle [rigidity](#) and [amnesia](#).

G - Inhibition of NMDA receptors

Explanation Why

Inhibition of NMDA receptors and activation of [dopaminergic neurons](#) are the mechanisms of action of [phencyclidine](#) (PCP), which is typically ingested through smoking. Features of PCP intoxication in addition to those seen in this patient include increased [pain](#) tolerance, dissociative feelings, [miosis](#), [vertical nystagmus](#), [delirium](#), and [seizures](#). [Benzodiazepines](#) are the treatment of choice for agitation associated with PCP, while [antipsychotics](#) (e.g., [haloperidol](#)) may be used if there are also symptoms of [psychosis](#).

Question # 2

A 28-year-old woman comes to the physician for counseling prior to conception. She has no history of serious illness and takes no medications. Physical examination shows no abnormalities. Laboratory studies show a hemoglobin concentration of 12 g/dL and a 2-h postprandial serum glucose concentration of 160 mg/dL ($N < 140$). The physician recommends oral supplementation of folic acid starting at least 4 weeks prior to conception to reduce the risk of neural tube defects in a newborn. Which of the following recommendations is an example of the same category of prevention?

	Answer	Image
A	Regular blood pressure measurement	
B	Papanicolaou smear	
C	HIV-1/2 combination immunoassay	
D	Insulin therapy	
E	Moderate aerobic exercise	
F	Breast self-examination	

Hint

The prevention of disease before it occurs is referred to as primary prevention.

Correct Answer

A - Regular blood pressure measurement

Explanation Why

Regular [blood pressure measurement](#) is an example of [secondary prevention](#) because its purpose is the early detection of [hypertension](#) in an asymptomatic individual in order to promote early intervention and to prevent further progression and complications from the disease. The recommendation provided to this patient belongs to a different category of disease prevention.

B - Papanicolaou smear

Explanation Why

[Papanicolaou smear](#) is an example of [secondary prevention](#) because its purpose is the early detection of [cervical cancer](#) in an asymptomatic woman in order to promote early intervention and to prevent further progression and complications from the disease. In relation to [cervical cancer](#), [vaccination](#) against [HPV](#) in young, sexually active individuals is an example of a recommendation that belong to the same category as the recommendation provided to this patient.

C - HIV-1/2 combination immunoassay

Explanation Why

HIV-1/2 combination immunoassay is an example of [secondary prevention](#) because its purpose is the early detection of the [human immunodeficiency virus \(HIV\)](#) in an asymptomatic person in order to promote early intervention and to prevent further progression and complications from the disease. In relation to [HIV](#) infection, the use of condoms, [HIV](#) pre-exposure prophylaxis, [HIV postexposure prophylaxis](#), and antiretroviral therapy in [HIV](#)-positive pregnant women to prevent [vertical transmission](#) are examples of recommendations that belong to the same category as that of the recommendation provided to this patient.

D - Insulin therapy

Explanation Why

[Insulin therapy](#) is an example of [tertiary prevention](#), which aims to reduce the [mortality](#) and [morbidity](#) of a disease that is clinically symptomatic or already been diagnosed by [laboratory studies](#). This asymptomatic patient with a 2-hour postprandial glucose of 160 mg/dL could have [impaired glucose tolerance](#) (prediabetes) but she does not require [insulin therapy](#), which is only indicated for patients with [diabetes mellitus](#) (2-hour postprandial glucose $\geq$ 200 mg/dL). The recommendation for [folic acid](#) supplementation belongs to a different category of disease prevention.

E - Moderate aerobic exercise

Explanation Why

[Folic acid](#) supplementation and moderate aerobic exercise are both examples of [primary prevention](#). Performing moderate aerobic exercise is an example of a lifestyle modification that decreases the risk of developing diseases like [hypertension](#), [diabetes mellitus](#), and [metabolic syndrome](#). Other examples of [primary prevention](#) measures include [vaccinations](#) to prevent infections, seat belt laws to prevent injury from a motor vehicle collision, and brushing with fluoridation of toothpaste to prevent dental caries.

F - Breast self-examination

Explanation Why

[Breast](#) self-examination is an example of [secondary prevention](#) because its purpose is the early detection of [breast cancer](#) in an asymptomatic woman in order to promote early intervention and to prevent further progression and complications from the disease. In relation to [breast cancer](#), risk-reducing mastectomy in individuals with [BRCA](#) mutations, [breastfeeding](#) during the [postpartum period](#), weight loss, and smoking cessation are examples of recommendations that belong to the same category as the recommendation provided by the physician to this patient.

Question # 3

A 23-year-old woman is brought to the emergency department by her friend because of unusual behavior that started 2 hours ago while they were attending a tea party. The patient reports that she keeps seeing a white rabbit running by with a clock. She adds, "I am afraid that the Queen of Hearts will chop off my head." Only minutes after arriving at the emergency department she asks, "Why is everything taking so long? I've been here for hours." She appears agitated. Her temperature is 37°C (98.6°F), pulse is 104/min, respirations are 19/min, and blood pressure is 145/90 mm Hg. Physical examination shows dilated pupils. The patient is alert and oriented to person but not to place or time. This patient most likely used which of the following substances?

	Answer	Image
A	Phencyclidine	
B	Lysergic acid diethylamide	
C	Heroin	
D	Cannabis	
E	Cocaine	
F	Methamphetamine	

Hint

This patient has visual hallucinations (a rabbit with a clock), distorted time perception (thinking she has been at the emergency department for hours rather than minutes), and paranoid delusions (fear that someone will chop off her head). She might also report that she was brought to the emergency department by the Cheshire Cat.

Correct Answer

A - Phencyclidine

Explanation Why

[Phencyclidine](#) can cause [visual hallucinations](#), [paranoid delusions](#), agitation, [tachycardia](#), and [hypertension](#), all of which are seen here. However, dilated pupils and distorted time perception are not typical features of intoxication with this drug. Instead, patients usually present with [miosis](#). Furthermore, [phencyclidine](#) intoxication typically manifests with nystagmus and aggressive behavior, neither of which are seen in this patient.

B - Lysergic acid diethylamide

Explanation Why

This patient has most likely used [lysergic acid diethylamide \(LSD\)](#), a hallucinogenic drug that primarily acts by activating [5-HT_{2A} receptors](#) and [D₂ receptors](#) in the [CNS](#). Vivid [visual hallucinations](#) and distorted time perception are characteristic features of [LSD](#) use, but patients can also experience anxiety, agitation, and [paranoid delusions](#) (a “bad trip”). In addition, [LSD](#) has [sympathomimetic](#) effects such as [tachycardia](#), [hypertension](#), and [mydriasis](#). Treatment consists of supportive care, reassurance, and, if needed, [antipsychotics](#) for [psychosis](#) and [benzodiazepines](#) for anxiety.

C - Heroin

Explanation Why

Heroin (an [opiate](#)) is associated with respiratory depression, [bradycardia](#), [hypotension](#), and [miosis](#). This patient, however, presents with [tachypnea](#), [tachycardia](#), [hypertension](#), and [mydriasis](#). While these symptoms, as well as agitation, may be seen in [heroin withdrawal](#), [hallucinations](#) and distorted time perception are not typical features of heroin use or withdrawal.

D - Cannabis

Explanation Why

Acute [cannabis](#) use can cause distorted time perception and [paranoid delusions](#), which are seen here. Acute [cannabis](#) use can also cause mild [tachycardia](#) and a slight increase in pupillary diameter (by 0.4–0.5 mm) as well as [systolic](#) blood pressure (by approx. 3 mm Hg). However, acute [cannabis](#) use is not associated with [diastolic hypertension](#), and [visual hallucinations](#) are unusual with [cannabis](#) use. This patient's [visual hallucinations](#) and significantly increased [systolic](#) and [diastolic](#) blood pressures suggest the use of a different drug.

E - Cocaine

Explanation Why

[Cocaine](#) can cause [tachycardia](#), [hypertension](#), [mydriasis](#), agitation, and, occasionally, features of [psychosis](#) (e.g., [visual hallucinations](#), [paranoid delusions](#)), all of which are seen here. However, distorted time perception would not be expected; this symptom suggests the use of a different drug.

F - Methamphetamine

Explanation Why

[Methamphetamine](#) can cause [mydriasis](#), [hypertension](#), [tachycardia](#), and, occasionally, features of [psychosis](#) (e.g., [hallucinations](#), [paranoid delusions](#)), all of which are seen here. However, distorted time perception is not a feature of [methamphetamine](#) use; this symptom suggests a different drug.

Question # 4

A 20-year-old man is brought to the emergency department by a friend 1 hour after suddenly becoming agitated. He reports that “It feels like ants are crawling on my skin.” He has no history of serious illness and takes no medications. His father has hyperthyroidism. His temperature is 37.2°C (99.0°F), pulse is 112/min, respirations are 16/min, and blood pressure is 145/94 mm Hg. On physical examination, the skin appears normal and is warm to the touch. He is alert and oriented to person, place, and time. Which of the following is the most appropriate initial action by the physician?

	Answer	Image
A	Obtain urine drug screen	
B	Obtain CT scan of the head	
C	Obtain electrocardiogram	
D	Request psychiatric consultation	
E	Obtain serum thyroid function tests	

Hint

This patient's presentation is most likely due to inhibition of dopamine, serotonin, and norepinephrine reuptake.

Correct Answer

A - Obtain urine drug screen

Explanation But

[Bath salt](#) intoxication should be suspected in individuals who display features of stimulant drug use but have negative [urine](#) toxicology.

Explanation Why

Acute onset of personality and [mood](#) changes (e.g, agitation), [formication](#), [tachycardia](#), and [hypertension](#) raise suspicion for stimulant intoxication (e.g., [cocaine](#), [amphetamines](#)). Other signs and symptoms of stimulant use include [mydriasis](#), psychomotor agitation, nausea, [diaphoresis](#), loss of appetite, weight loss, and neuropsychiatric symptoms (e.g., visual and/or [auditory hallucinations](#), [delusions](#)). Urine drug screen is the best initial test to evaluate for potential [cocaine](#) and/or [amphetamine](#) intoxication or overdose. If [urine](#) toxicology findings show stimulant intoxication, treatment (e.g., [benzodiazepines](#)) can be initiated to alleviate agitation, reduce [sympathomimetic](#) effects, and prevent complications, such as [seizures](#) and [myocardial infarction](#).

B - Obtain CT scan of the head

Explanation Why

Patients with new-onset [psychotic symptoms](#) may require neuroimaging (e.g., CT or [MRI](#) of the head) to evaluate for [stroke](#), space-occupying lesions, [neurodegenerative brain diseases](#), and/or [demyelinating](#) disorders, particularly with concomitant neurological findings (e.g., [memory](#) loss, [headaches](#), vomiting, [seizures](#), neurological deficits). However, in a young patient who is [alert](#), oriented, and has no focal neurological deficits, as seen here, neurological disease is not the most likely underlying cause; therefore, a different test should be obtained first.

C - Obtain electrocardiogram

Explanation Why

Acute onset of personality and [mood](#) changes (e.g, agitation), [formication](#), [tachycardia](#), and [hypertension](#) raise suspicion for stimulant intoxication (e.g., [cocaine](#), [amphetamines](#)). Complications of stimulant drug use include [tachyarrhythmias](#) and vasospasm, which are [risk factors](#) for [myocardial infarction](#). This patient's vital signs, however, show mild [tachycardia](#) and [hypertension](#), which do not require immediate intervention. A different test should be obtained first.

D - Request psychiatric consultation

Explanation Why

Acute onset of [hallucinations](#) raise suspicion for a [psychotic disorder](#). However, [psychosis](#) is more commonly associated with [auditory hallucinations](#) than [tactile hallucinations](#), which are rare. Moreover, this patient does not display other features of [psychosis](#), such as [illusions](#), [delusions](#), disorganized speech, disorganized behaviors, and negative symptoms. Although individuals with new-onset [psychotic symptoms](#) may require psychiatric workup, psychiatric consultation should only be pursued after ruling out other organic disorders that can mimic [psychosis](#).

E - Obtain serum thyroid function tests

Explanation Why

Agitation, [hallucinations](#), [tachycardia](#), [hypertension](#), warm [skin](#), and a [family history](#) of [hyperthyroidism](#) may raise suspicion for [hyperthyroidism](#). Patients with new-onset [psychotic symptoms](#) and [features of hyperthyroidism](#) should have [TSH](#) levels checked eventually. However, a different test should be obtained more urgently.

Question # 5

A 36-year-old man comes to the physician for a routine health maintenance examination. He complains that other patients in the waiting room had tried to engage him in a conversation about their own problems. He says, “My health is far more important than their health! After all, I am the manager of a legen—wait for it—dary multinational bank!” He wears a different suit every time he comes to the physician. He regularly goes to bars and drinks excessively. He is sexually active with multiple female partners and reports that he has difficulties keeping up a stable relationship. His temperature is 37°C (98.6°F), pulse is 81/min, and blood pressure is 129/80 mm Hg. Physical examination shows no abnormalities. Which of the following is the most likely diagnosis?

	Answer	Image
A	Antisocial personality disorder	
B	Histrionic personality disorder	
C	Bipolar disorder type I	
D	Borderline personality disorder	
E	Narcissistic personality disorder	
F	Amphetamine use disorder	

Hint

Out of a desperate need for admiration, the patient claims that he is the world's best laser tag player. True story.

Correct Answer

A - Antisocial personality disorder

Explanation Why

[Antisocial personality disorder](#) is characterized by a pattern of deceitfulness, aggression, recurrent criminal activity, impulsivity, disregard for one's safety and/or the safety of others, lack of remorse and/or emotional indifference to the plight of others, and a failure to fulfill obligations at work and/or home. Though this patient's history of excessive drinking and promiscuity may be consistent with impulsivity, he lacks the other typical manifestations of [antisocial personality disorder](#).

B - Histrionic personality disorder

Explanation Why

[Histrionic personality disorder](#) is distinguished by a pervasive pattern of attention-seeking behavior. Patients with this disorder are often uncomfortable in situations in which they are not the center of attention. They typically use physical appearance, dramatic [speech](#), exaggerated emotionality and emotional expression, sexually inappropriate and provocative behavior and clothing, and rapidly shifting and shallow emotions to draw attention to themselves. They are easily influenced by others they admire and consider relationships to be more intimate than they are in reality. This patient's behavior may be sexually promiscuous and attention-seeking, but his comments regarding his superiority and importance, as well as his disdain for the other persons in the waiting room, are more consistent with another diagnosis.

C - Bipolar disorder type I

Explanation Why

[Bipolar disorder type I](#) is characterized by at least one [manic episode](#) that may be preceded or followed by a [hypomanic](#) or depressive episode. Patients with this condition can demonstrate inflated self-esteem, [grandiosity](#), promiscuity, and an increase in goal-directed activity (e.g., becoming a high-level manager at a multinational bank). However, this patient lacks other typical manifestations

of [bipolar disorder type I](#), including a history of fluctuating [mood](#), distractibility, [pressured speech](#), and impairment at home, work, or socially.

D - Borderline personality disorder

Explanation Why

[Borderline personality disorder](#) is characterized by emotional instability, identity disorder, impulsivity, risk-taking behavior, recurrent suicidal or self-injurious behavior, feelings of emptiness, inappropriate anger or aggression, fear of abandonment, unstable interpersonal relationships, and transient [paranoid](#) ideation or dissociative symptoms. Although this patient has a history of unstable relationships and impulsivity, the other characteristics of [borderline personality disorder](#) are not evident in his behavior.

E - Narcissistic personality disorder

Explanation Why

[Narcissistic personality disorder](#) is characterized by a pervasive pattern of [grandiosity](#), fantasies of power or importance, need for admiration or special treatment, lack of empathy, sense of entitlement, and interpersonally exploitative behavior. This patient displays a lack of empathy towards other patients (“My health is far more important than their health!”) and arrogance regarding his career (“I am the manager of a legen—wait for it—dary multinational bank!”). Moreover, his history of excessive drinking and promiscuity are consistent with impulsivity. A history of unstable relationships is also typical of patients with [narcissistic personality disorder](#).

F - Amphetamine use disorder

Explanation Why

[Amphetamine use disorder](#) is characterized by impaired control over the use of [amphetamines](#) despite negative effects on interpersonal relationships, failure to fulfill major obligations at work, school, and/or home, development of tolerance, and occurrence of withdrawal symptoms upon discontinuation of use. Symptoms of acute intoxication include increased libido and megalomania.

However, this patient lacks other typical findings of [amphetamine](#) intoxication, including increased body temperature, loss of appetite, [bruxism](#), sweating, [mydriasis](#), and [tachycardia](#). In addition, his comments regarding his superiority and importance, as well as his disdain for the other persons in the waiting room, are more consistent with another diagnosis.

Question # 6

A 16-year-old boy comes to the physician because of burning pain during urination for the past week. During this period, he has also had clear discharge from the penis. He recently had unprotected sex with his girlfriend, who is the same age as him. The result of a polymerase chain reaction test for *Chlamydia trachomatis* is positive. The patient says that his girlfriend knows about his symptoms, but he does not want his parents to be notified of his sexual activity or his positive test for a sexually-transmitted infection because they do not approve of premarital sex. He adds that he wants to avoid any further conflicts with his mother, as they have been fighting recently. Which of the following is the most appropriate action by the physician?

	Answer	Image
A	Prescribe medication for the patient and inform the girlfriend's parents	
B	Prescribe medication for the patient only if the patient's parents give consent to treatment	
C	Prescribe medication for the patient and inform both the patient's parents and the girlfriend's parents	
D	Prescribe medication for the patient only if the patient meets the criteria for legal emancipation	
E	Prescribe medication for the patient without notifying the patient's parents or the girlfriend's parents	
F	Prescribe medication for the patient and his girlfriend and inform both the patient's parents and the girlfriend's parents	

Hint

There are exceptions to when consent from a parent is required before treating a minor.

Correct Answer

A - Prescribe medication for the patient and inform the girlfriend's parents

Explanation Why

Laws regarding consent in [adolescent](#) health care differ by state, but all states allow minors to consent for the evaluation and management of [sexually-transmitted infections \(STIs\)](#); parental consent is not required. Thus, informing this patient's girlfriend's parents without his consent is a breach of [confidentiality](#).

B -

Prescribe medication for the patient only if the patient's parents give consent to treatment

Explanation Why

Laws regarding consent in [adolescent](#) health care differ by state, but all states allow minors to consent for the evaluation and management of [sexually-transmitted infections \(STIs\)](#). Thus, informing this patient's parents without his consent is a breach of [confidentiality](#), and their consent to treatment is not needed.

C -

Prescribe medication for the patient and inform both the patient's parents and the girlfriend's parents

Explanation Why

Laws regarding consent in [adolescent](#) health care differ by state, but all states allow minors to consent for the evaluation and management of [sexually-transmitted infections \(STIs\)](#); parental consent is not required. Thus, informing this patient's parents and his girlfriend's parents without his consent is a breach of [confidentiality](#).

D -

Prescribe medication for the patient only if the patient meets the criteria for legal emancipation

Explanation Why

Laws regarding consent in [adolescent](#) health care differ by state, but all states allow minors to consent for the evaluation and management of [sexually-transmitted infections \(STIs\)](#); legal emancipation is not required.

E -

Prescribe medication for the patient without notifying the patient's parents or the girlfriend's parents

Explanation But

Other exceptions to when parental consent is generally not needed for a minor to receive medical care include emergency care, care related to addiction, and care related to sexual behavior (e.g., [contraception](#), [pregnancy](#)).

Explanation Why

Laws regarding consent in [adolescent](#) health care differ by state, but all states allow minors to consent for the evaluation and management of [sexually-transmitted infections \(STIs\)](#); parental consent is not required. This patient does not want his parents to know that he is sexually active or has an [STI](#). Accordingly, the physician is ethically and legally obliged to keep his medical information confidential (though minors should, in general, be counseled to have open discussions about health with their parents or legal guardians). However, because this patient has a [notifiable disease](#) (*Chlamydia trachomatis* infection), the physician is required to report the case to a public health official.

F -

Prescribe medication for the patient and his girlfriend and inform both the patient's parents and the girlfriend's parents

Explanation Why

Laws regarding consent in [adolescent](#) health care differ by state, but all states allow minors to consent for the evaluation and management of [sexually-transmitted infections \(STIs\)](#); parental consent is not required. Thus, informing this patient's parents and his girlfriend's parents without his consent is a breach of [confidentiality](#). In several states, physicians can also prescribe treatment for certain [sexually-transmitted infections](#) for a patient's partner even if the partner has not been evaluated by the physician.

Question # 7

A 34-year-old woman is brought to the emergency department by her roommate because of a 2-hour history of increased thirst and erratic behavior. The roommate says that the patient returned home from a party and began to touch pillows and blankets in the apartment and profess her intensely positive feelings and affection for the world. The roommate also reports that the patient often uses recreational drugs at parties. On arrival, the patient is diaphoretic and oriented only to person. Her temperature is 39°C (102.2°F), pulse is 114/min, and blood pressure is 156/102 mm Hg. Neurologic examination shows tremulousness and bilateral pupillary dilation. Serum studies show a sodium concentration of 130 mEq/L. This patient is most likely intoxicated with which of the following substances?

	Answer	Image
A	Lysergic acid diethylamide	
B	Methylenedioxymethamphetamine	
C	Phencyclidine	
D	Cocaine	
E	Nitrous oxide	

Hint

Overdose with this drug can also cause serotonin syndrome.

Correct Answer

A - Lysergic acid diethylamide

Explanation Why

Patients intoxicated with [lysergic acid diethylamide \(LSD\)](#) classically present with vivid [visual hallucinations](#) and distorted time perception, but can also experience anxiety, agitation, and [paranoid delusions](#). In addition, [LSD](#) has mild [sympathomimetic](#) effects such as [tachycardia](#), [hypertension](#), and [mydriasis](#). However, increased thirst, hyperthermia, [tremor](#), and [hyponatremia](#) are not features consistent with [LSD](#) intoxication.

B - Methylenedioxymethamphetamine

Explanation But

Mild [hyponatremia](#) can be treated with fluid restriction. If the patient develops severe [hyponatremia](#) with neurologic symptoms (e.g., [seizures](#), confusion), hypertonic saline is indicated.

Explanation Why

This patient's increased thirst, euphoria, confusion, hyperthermia, [tachycardia](#), [hypertension](#), [mydriasis](#), [tremor](#), and [hyponatremia](#) indicate intoxication with 3,4-methylenedioxymethamphetamine ([MDMA](#)). [MDMA](#)-induced [hyponatremia](#) is due to an inappropriate increase in [ADH](#), increased thirst stimulation, and the belief of some users that the intake of large amounts of water can help prevent hyperthermia. The treatment of [MDMA](#) intoxication focuses on controlling the patient's [hypertension](#), [arrhythmias](#), hyperthermia, and [hyponatremia](#).

C - Phencyclidine

Explanation Why

[Phencyclidine](#) (PCP) intoxication can also manifest with confusion, euphoria, hyperthermia, [tachycardia](#), and [hypertension](#). However, PCP typically causes [miosis](#), not [mydriasis](#), and is inconsistent with this patient's increased thirst and [hyponatremia](#). Moreover, aggressive behavior and nystagmus would be expected.

D - Cocaine

Explanation Why

Patients with [cocaine](#) intoxication can present with confusion, euphoria, hyperthermia, [tachycardia](#), [hypertension](#), [tremor](#), and bilateral [mydriasis](#). However, it would not explain this patient's increased thirst and [hyponatremia](#).

E - Nitrous oxide

Explanation Why

[Nitrous oxide](#) intoxication can also manifest with confusion, euphoria, and [tremor](#). However, [hypertension](#), [tachycardia](#), increased body temperature, [diaphoresis](#), increased thirst, and [hyponatremia](#) would not be expected. Moreover, [nitrous oxide](#) has a short duration of action and the symptoms are unlikely to persist for this long.

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Question # 8

A 9-year-old girl is brought to the physician by her mother because of bedwetting during the past 3 weeks. The mother is concerned because she has received phone calls from the school that her daughter has been acting out in class and making inappropriate jokes. Physical examination shows a thin female body habitus with no axillary or pubic hair. A few pink, fleshy papules measuring 3–5 mm in size are present on the vulva. There is no vulvar erythema or discharge. Which of the following is the most appropriate next step by the physician?

	Answer	Image
A	Reassure the mother and follow up with the patient	
B	Interview the patient and mother separately	
C	Recommend scheduled voiding and fluid restriction at night	
D	Contact hospital social workers	
E	Perform a urine dipstick test and measure serum glucose	
F	Recommend desmopressin therapy	

Hint

This 9-year-old girl has new-onset nocturnal enuresis, behavioral changes, and features suggestive of condylomata acuminata.

Correct Answer

A - Reassure the mother and follow up with the patient

Explanation Why

Reassuring the mother and following up with the patient is indicated in primary [enuresis](#) (the patient never achieved continence) up to 5 years of age whereas this patient has new-onset secondary [enuresis](#) (the patient previously achieved continence) at 9 years of age, which requires further workup. However, this girl's additional behavioral changes and physical findings raise concern for something else that needs to be ruled out before her [enuresis](#) is assessed further.

B - Interview the patient and mother separately

Explanation Why

This child shows signs of sexual abuse. Since most children experiencing sexual abuse do not present with overt physical findings, a well-documented patient interview is often the most important piece of evidence. Interviewing the patient and mother separately allows for a neutral and honest conversation between the child and physician. At age 9 to 12 years, this girl is in the prime group at risk for sexual abuse. In over 90% of cases, the perpetrator is somebody known to the child or family. Behavioral changes that should raise concern for sexual abuse include sexual acting out or sexual insights that are inconsistent with age, problems at school, aggression, regression, eating or sleep disturbances, and depression. Medical conditions that should raise concern for sexual abuse include [sexually transmitted infections \(STIs\)](#), [pregnancies](#), recurrent urinary tract infections, anogenital or oral trauma, [encopresis](#), and [enuresis](#). In general, the threshold for investigating any suspected case of [child abuse](#) should be very low. The basic medical interview is followed by a gentle [physical examination](#), including a test for [STIs](#). Subsequently, the physician must notify child protective services (CPS) to ensure further investigation of the case (including a thorough forensic interview) and the safety of the child.

C - Recommend scheduled voiding and fluid restriction at night

Explanation Why

Scheduled voiding and fluid restriction at night are indicated as first-line therapy for [nocturnal enuresis](#) that is not caused by another medical condition in children older than 5 years of age. However, this girl's additional behavioral changes and physical findings raise concern for something else that needs to be ruled out before her [enuresis](#) is assessed further.

D - Contact hospital social workers

Explanation Why

Hospital social work services support patients and their families to cope with difficult situations, including suspected [child maltreatment](#). While involving social workers may be warranted at a later point, another step in management is more urgently indicated.

E - Perform a urine dipstick test and measure serum glucose

Explanation Why

Performing a [urine dipstick](#) test and measuring serum glucose is indicated for ruling out [type 1 diabetes](#). Secondary [enuresis](#) and [nocturia](#), both of which are seen here, may occur in children with [type 1 diabetes](#). However, this girl's additional behavioral changes and physical findings raise concern for something else that needs to be ruled out before she is assessed for [type 1 diabetes](#).

F - Recommend desmopressin therapy

Explanation Why

[Desmopressin](#) therapy is indicated as second-line therapy for [nocturnal enuresis](#) that is not caused by another medical condition in children older than 5 years of age. This patient's additional behavioral changes and physical findings, however, raise concern for something else that needs to be ruled out before her [enuresis](#) is assessed further.

Question # 9

A 28-year-old man comes to the physician accompanied by his roommate because of recurrent memory gaps and angry outbursts. When an episode occurs, he cannot recall what has happened for several hours. Twice, his roommate encountered the patient timidly huddled up on the floor while “talking to the others” in an unusually high-pitched child-like voice. The patient vigorously denies any memory of the situation. He recently lost his job at the zoo because of his sudden behavioral changes. When he was 3 years old, his father died in a train crash. His mother had obsessive-compulsive disorder and severely punished him whenever he would get something dirty as a child. He does not smoke or take illicit drugs, but drinks several beers every weekend that “help him drown his feelings of not being part of this world.” He has taken multiple psychiatric drugs for depression and anxiety in the past, which did not help improve his symptoms. The patient is meticulously shaved and excessively well-groomed. He appears calm and confident. Physical examination shows old scars over his wrists. On mental status examination, short-term memory is intact. Which of the following is the most likely diagnosis?

	Answer	Image
A	Schizophrenia	
B	Dissociative amnesia	
C	Dissociative identity disorder	
D	Depersonalization disorder	
E	Post-traumatic stress disorder	
F	Borderline personality disorder	

Hint

“It’s only after we’ve lost everything that we’re free to do anything.”

Correct Answer

A - Schizophrenia

Explanation Why

[Schizophrenia](#) is characterized by recurring (or chronic) episodes of [psychosis](#), which may be characterized by behavioral changes. This patient's conversations with invisible people could suggest [auditory hallucinations](#), a [schizophrenia](#)-defining symptom. However, to establish the diagnosis, at least one other symptom of the following would have to be present: [delusions](#), disorganized speech, grossly disorganized/[catatonic behavior](#), or negative symptoms. None of these other symptoms are seen in this patient.

B - Dissociative amnesia

Explanation Why

[Dissociative amnesia](#) is characterized by [memory](#) gaps that lead to clinically significant social and/or occupational impairment. Although this patient has experienced frequent lapses in [memory](#) and recent job loss, his other symptoms (angry outbursts, possible [auditory hallucinations](#)) are better explained by another psychiatric disorder, which, by definition, excludes [dissociative amnesia](#) as a diagnosis.

C - Dissociative identity disorder

Explanation But

Although patients with DID are commonly portrayed in movies as abusive or harmful towards others, they are rather more susceptible to self-harm and [suicide](#).

Explanation Why

[Dissociative identity disorder](#) (DID) is characterized by the disruption of identity into at least two

distinct personality states in combination with recurrent [memory](#) gaps. In addition to these two criteria, a diagnosis of DID requires that the symptoms cause significant social or occupational impairment and that the symptoms must not be related to [substance use](#), other medical conditions, or be part of an accepted cultural or religious practice. This patient's sudden behavioral changes (child-like behavior, angry outbursts, calm and confident behavior at time of visit) are suggestive of separate identity states. Moreover, his recurrent episodes of [amnesia](#), recent loss of employment, and behavioral changes that are not limited to his weekend alcohol use further support the diagnosis of DID. Further manifestations of DID present in this patient include episodes of [derealization](#) (“feelings of not being part of this world”) and [auditory hallucinations](#) (suggested by the patient “talking to the others”). 90% of patients with DID have a history of abuse or neglect during childhood.

D - Depersonalization disorder

Explanation Why

[Depersonalization disorder](#) is characterized by a feeling of detachment from oneself. Affected individuals often describe this feeling as observing themselves from outside their bodies. This patient, however, describes a feeling of “not being part of this world,” which is more consistent with [derealization](#) than [depersonalization](#). In [derealization](#), individuals feel detached from the external environment. Finally, neither [depersonalization](#) nor [derealization](#) disorder is associated with [memory](#) gaps or sudden changes in behavior, both of which are seen here.

E - Post-traumatic stress disorder

Explanation Why

[Post-traumatic stress disorder \(PTSD\)](#) can develop in response to experiencing a [traumatic event](#) (e.g., [child abuse](#)), which is evidenced here from this patient's history. However, other symptoms of [PTSD](#) such as distressed [mood](#), altered reactivity (e.g., sleep disturbances), avoidance of triggering stimuli, and [intrusive symptoms](#) (e.g., [flashbacks](#), nightmares) are not seen here. Moreover, this patient's amnesic episodes and sudden behavioral changes with no apparent trigger are inconsistent with [PTSD](#).

F - Borderline personality disorder

Explanation Why

[Borderline personality disorder](#) (BPD) is characterized by emotional instability and a lack of impulse control that can result in frequent angry outbursts, which are seen in this patient. In addition, individuals affected by BPD often display self-destructive behavior, as suggested by the scars across his wrists. However, BPD is characterized by the inability to maintain interpersonal relationships combined with a high fear of abandonment, which is not expressed by this patient. Moreover, his amnestic episodes and sudden behavioral changes are inconsistent with BPD.

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